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SIEMENS

Catalog
IC 10

Edition
2023

SIRIUS

# Industrial Controls

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## Related catalogs

**Industrial Controls** IC 10
SIRIUS

PDF (E86060-K1010-A101-B5-7600)

**Low-Voltage Power Distribution and Electrical Installation Technology** LV 10
SENTRON • SIVACON • ALPHA

PDF (E86060-K8280-A101-B6-7600)

**SIMATIC** ST 70
Products for
Totally Integrated Automation

PDF (E86060-K4670-A101-B9-7600)

**Motion Control Drives** D 31.2
SINAMICS Converters for Single-Axis Drives
Distributed Converters

PDF (E86060-K5531-A121-A2-7600)

**SIMATIC Ident** ID 10
Industrial Identification Systems

E86060-K8310-A101-B1-7600

**SITOP** KT 10.1
SITOP
Power Supply

PDF (E86060-D4001-A510-E0)

**SITRAIN**
Digital Industry Academy

www.siemens.com/sitrain

## Miscellaneous

**Industry Mall**
Information and Ordering Platform
on the Internet:

www.siemens.com/industrymall

**Siemens TIA Selection Tool**
for the selection, configuration and ordering of TIA products and devices

www.siemens.com/tst

**Contact**
Your personal contact can be found in our Contacts Database at:

www.siemens.com/automation-contact

## Trademarks

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Further information about industrial controls:
www.siemens.com/sirius

## Technical Support

Expert technical support
for Industrial controls:

Support Request:
www.siemens.com/support-request

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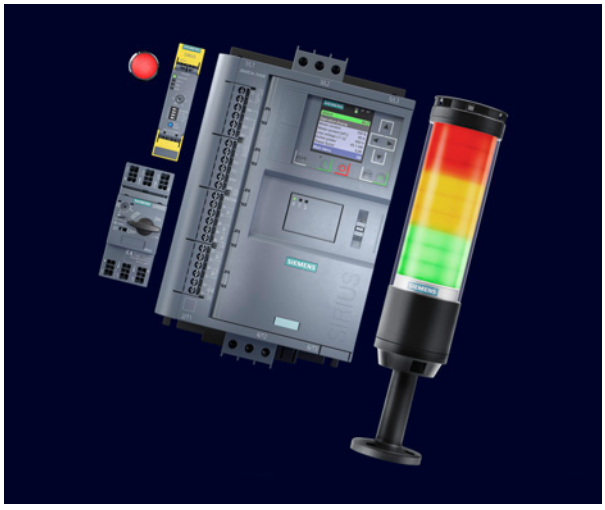
# Industrial Controls

## SIRIUS



**Catalog IC 10 · 2023**

Supersedes:
Catalog IC 10 · 01/2022

Refer to the Industry Mall for regular updates of this catalog:
www.siemens.com/industrymall

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The catalog PDF contains click-on article numbers, graphics and videos.

The products and systems described in this catalog are manufactured/distributed under application of a certified quality management system in accordance with EN ISO 9001 (for the Certified Registration Nos., see www.siemens.com/system-certificates/ep). The certificate is recognized by all IQNet countries.


1 Introduction

2 Industrial communication

3 Switching devices – Contactors and contactor assemblies – for switching motors

4 Switching devices – Contactors and contactor assemblies – Special applications

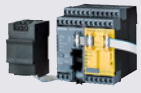
5 Switching devices – Contactors and contactor assemblies – Contactor relays and relays

6 Switching devices – Soft starters and solid-state switching devices

7 Protection equipment

8 Load feeders and motor starters for use in the control cabinet

9 Motor starters for use in the field, high degree of protection

10 Monitoring and control devices 

11 Safety technology

12 Position and safety switches

13 Commanding and signaling devices

14 Parameterization, configuration and visualization with SIRIUS

15 Power supply

16 Appendix

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# Ordering notes

## Catalog IC 10 contains all selection and order-relevant data.

## Ordering notes

Ordering special versions

For ordering products that differ from the versions listed in the catalog, the article number specified in the catalog must be supplemented with "-Z"; the required features must be specified by means of the alphanumeric order codes or in plain text.

Small orders

When small orders are placed, the costs associated with order processing are greater than the order value. We recommend therefore that you combine several small orders. Where this is not possible, we unfortunately have to charge a processing supplement of 20.00 € to cover our costs for order processing and invoicing for all orders with a net goods value of less than 250.00 € .

## Price units (PU)

The price unit defines the number of units, sets or meters to which the specified price applies.

## Price groups (PG)

Each product is assigned to a price group.

## Dimensions

All dimensions in mm.

## Standard delivery time (SD)

Due to the current tight delivery situation on the market, no standard delivery times are listed for our articles in this edition of the catalog. Current information is given in the Mall for the respective article number at www.siemens.com/sirius/mall.

## Packaging sizes (PS)

The packaging size defines the number, e.g. of units, sets or meters, contained in an outer packaging. Only the quantity defined by the packaging size or a multiple thereof can be ordered. For multi-unit packing and reusable packaging, see page 16/5 onwards.

## Example

3RA2110-0FA15-1AP0
PG: 41D
Order quantity 1 unit or a multiple thereof
3RA1921-1D
PG: 41B
Order quantity 10 units or a multiple thereof
3SU1900-0AB71-0AB0
PG: 41J
Order quantity 10 units or a multiple thereof

| Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|
| **3RA2110-0FA15-1AP0** | | 1 | 1 unit | 41D |
| **3RA1921-1D** | | 1 | 10 units | 41B |
| **3SU1900-0AB71-0AB0** | | 100 | 10 units | 41J |

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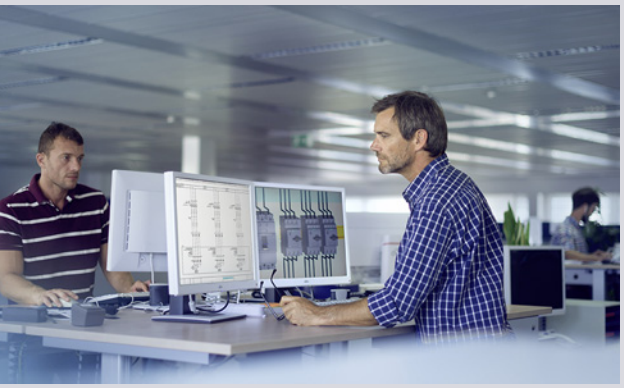


# SIRIUS in the World Wide Web

## The most important online services at a glance.

### Industrial controls

Homepage
www.siemens.com/sirius

### Siemens Industry Online Support – SIOS

Product Support
www.siemens.com/online-support

### Industry Mall

Catalog and Ordering System
www.siemens.com/industrymall

### Siemens Industry Online Support App

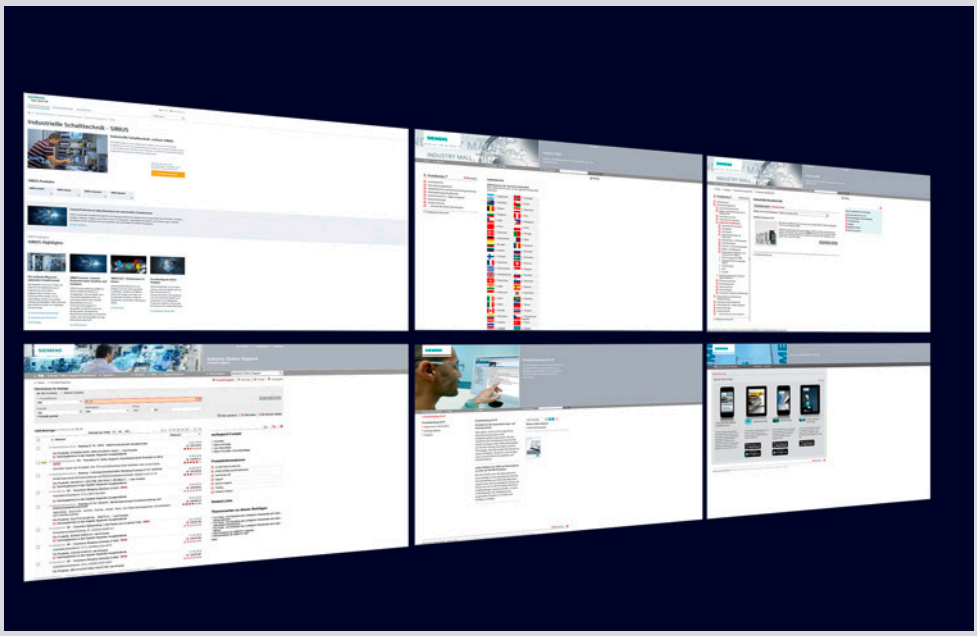
More information on the Online Support App
www.siemens.com/support-app

### Configuring products and systems

Configurators
www.siemens.com/sirius/configurators

### Device selection and configuration

TIA Selection Tool
www.siemens.com/tst



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# SIRIUS 3RW soft starters

## As diverse as your tasks

**The strong, harmonized portfolio of soft starters is suited to a wide range of standard – and also Failsafe and ATEX – applications thanks to comprehensive and specific functions.**
**Benefit from intelligent functions such as condition monitoring, automatic parameterization, pump cleaning and integrated braking functions, regardless of the industry you are in.**

### Strong portfolio
Comprehensive, coordinated soft starter portfolio for simple to demanding starting: Basic, General, High Performance

### Efficient switching
Energy-efficient switching and mechanical protection of the drive train thanks to soft starter with hybrid switching technology

### Intelligent use
Concentrated, application-specific functionality thanks to intelligent features such as automatic parameterization, pump cleaning and condition monitoring

### Ready for the digital future
Support for digital engineering processes with tools and data. Data provision for local visualization or cloud-based analysis

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**SIRIUS 3RW**
Strong, comprehensive portfolio with a wide range of possibilities thanks to a flexible design.

More information, see www.siemens.com/softstarters

**Digitalization**
The 3RW soft starters help you to realize the full potential of digitalization. This is particularly beneficial when it comes to economic efficiency.

## Your application in focus

### Pump cleaning and pump stopping mode

The pump cleaning function prevents pumps from blocking and therefore increases your productivity and system availability. The pump stopping mode avoids mechanical stress in the piping system and extends the service life of the equipment.

### Electrical ruggedness

Due to the wide control voltage range from 110 to 250 V AC, soft starters have a high degree of electrical ruggedness. This guarantees reliable operation even in the event of falling voltages.

### Condition monitoring

The condition monitoring function supports optimal planning of maintenance work on bearings or seals, thereby maximizing availability.

### Automatic parameterization

Automatic parameterization simplifies the commissioning and operation of critical applications considerably, even in the case of highly dynamic load characteristics.

### Integrated braking functions

Intelligent functions such as soft starter braking ensure a fast and reliable stop without engineering and configuration work.

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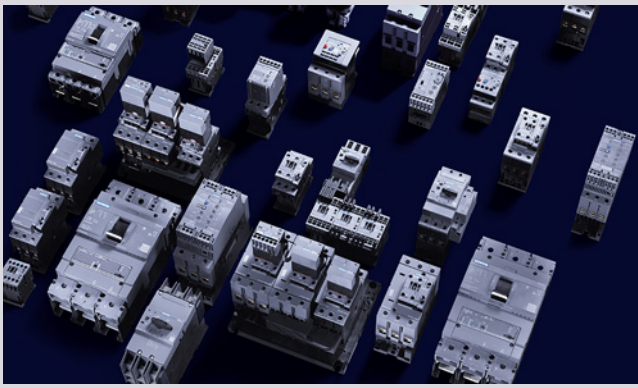
# SIRIUS modular system

## Efficiently combined.



More information, see www.siemens.com/sirius-modular-system

### Modular design

Optimally matched and dimensioned products expandable with uniform accessories

### Save space

Highest performance on the market based on installation size

### Order pre-assembled

Ready-made and tested combinations with short-circuit strength up to 150 kA/400 V

### Quick wiring

Comprehensive portfolio for spring-loaded terminals, function blocks for contactor assemblies for reversing and star-delta (wye-delta) starting as well as connectors

### Efficient configuration

Configuration data and macros for integration into your CAE systems

### Use anywhere

Fulfills all relevant standards worldwide and requirements of many applications even under extreme operating conditions (safety applications, rail and shipbuilding, etc.)

### Sustainable switching and protecting AC-3e

Is IE3/IE4 ready and has the new utilization category AC-3e. Ideal partner for switching and protecting highly efficient motors

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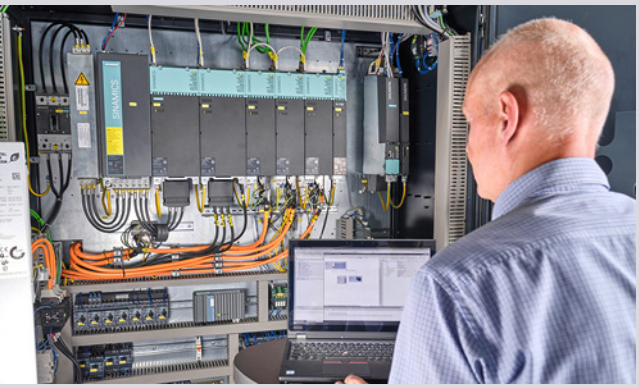
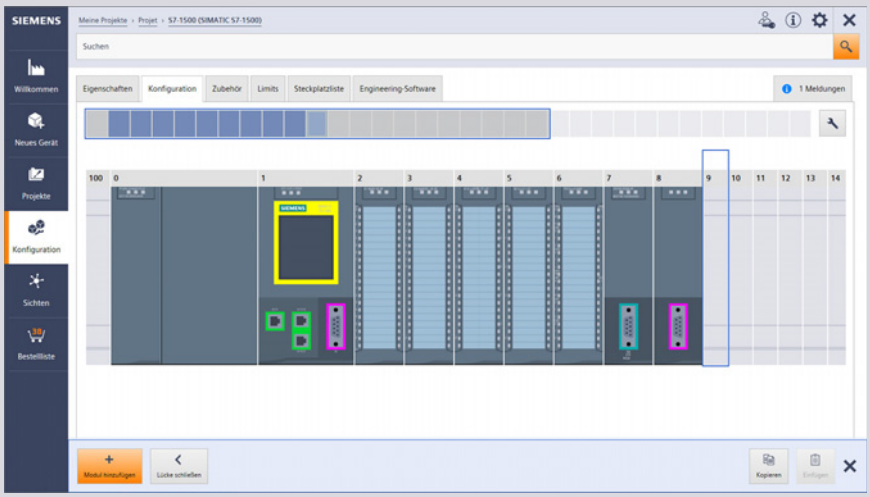


# TIA Selection Tool

## quick, easy, smart configuration

### For you to get the most out of our portfolio quickly and easily.

Do you always need the optimum configuration for planning your project? For your application we offer the TIA Selection Tool to support all project planners, beginners and experts alike. No detailed portfolio knowledge is necessary.
TIA Selection Tool is available for download as a free desktop version or a cloud variant.




### Quick

- Configure a complete project with just a few entries – without a manual, without special knowledge
- Import and export of hardware configuration to TIA Portal or other systems
- Ideal visualization of the projects to be configured

### Easy

- Tool download either as desktop version or web-based cloud version
- Technically always up-to-date about product portfolio and innovative approaches
- Highly flexible, secure, cross-team work in the cloud
- Direct ordering in the Siemens Industry Mall

### Smart

- Smart selection wizard for error-free configuration and ordering
- Configuration options can be tested and simulated in advance
- Library for archiving sample configurations

**The TIA Selection Tool is a completely paperless solution. Download it now:**
**www.siemens.com/tst**

For more information, scan the QR code

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# Smart Control Panel Design

## The new standard in electrical engineering

**With Control Panel Design, Siemens offers for the first time a function in the TIA Selection Tool that can be used to design and dimension the main electrical system of a machine in accordance with standards.
And this for the IEC standardization area and for the important North American market.**

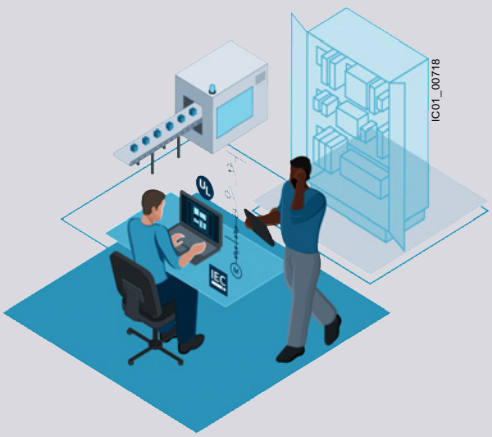
**At the push of a button you receive the appropriate switching and protection devices for your motor, including standard-compliant cable cross-sections and short-circuit values for fuseless and fused load feeders.**

**Never before has the dimensioning of your load feeders been so quick and reliable!**

### Electrical engineering in ONE tool. This makes configuring more enjoyable!

**1.**
Digital expertise on standards
**Standard conformity with no worries**

**2.**
Easy dimensioning
**A new dimension of dimensioning**




**3.**
Consistent workflow
**Electrical engineering with unlimited creativity**

**4.**
Supported portfolio
**Intelligent devices for versatile solutions**

### Highlights

- Automatic short-circuit calculation and cable dimensioning
- Automatic dimensioning of fuseless and fused load feeders up to 250 hp according to UL 508A or up to 250 kW according to IEC 60204-1
- Selection of the appropriate switching and protection devices for the motor
- Visual planning of the main circuit in the single-line diagram
- Simple accessory selection
- Complete PDF documentation of technical specifications and calculation results (e.g. for the short-circuit verification)
- Simple main switch dimensioning for IEC and UL infeeds

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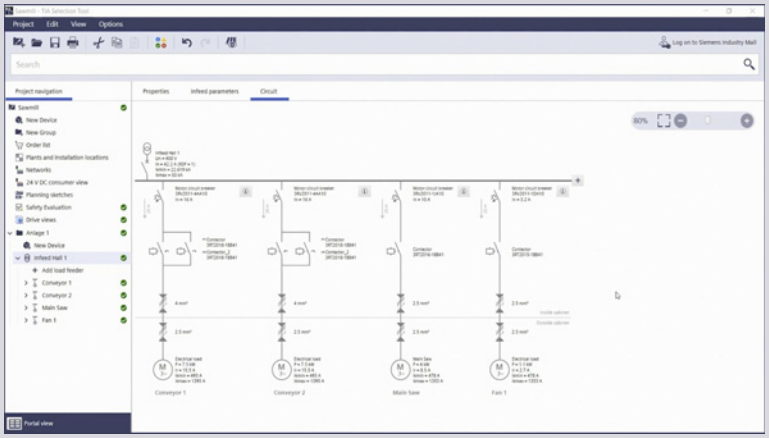
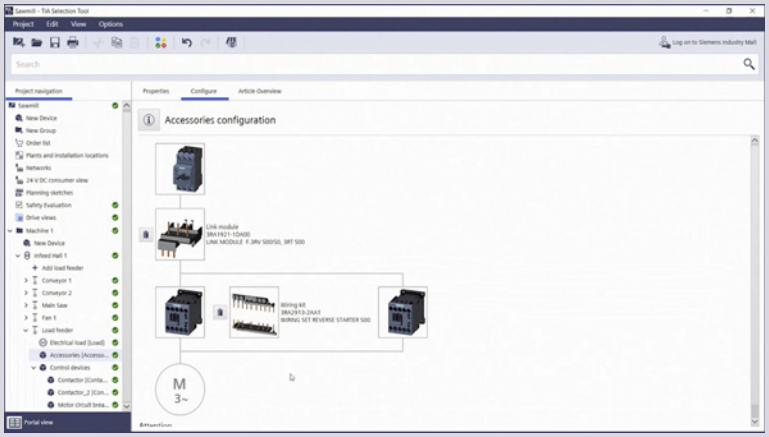
For more information, tool download and videos, see www.siemens.com/cpd

## Are you looking for a clear and easy way to dimension your circuits?



## Or do you need suitable accessories for your switching devices?




The main circuit view with single-line display and the automatic display of accessories are two of the many new functions in the TIA Selection Tool.

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# Integrated Control Panels

## The easy way to build the optimum control panel.

**We offer practical support in mastering the typical challenges of control panel engineering through a harmonized product portfolio, tools and data for digitalization in engineering, and expert know-how.**

### Working together for simple and stress-free control panel design

#### Comprehensive support for all control panel applications

Want to save time and costs? With Integrated Control Panels, it's easy to optimize all aspects of control panel building for your machines and industrial plants. From preparation and dimensioning, design and construction, through to service and support – for greater competitiveness and long-term success.

### Expert know-how

#### The faster route to the ideal control panel with practice-oriented expertise

We support you with exactly the right know-how to give you a competitive edge – both now and in the future. This includes applying standards and guidelines in day-to-day operations (e.g. UL 508A, IEC 60204-1) as well as efficient engineering and configuration.

- Webinars, online trainings and individual consulting on product and application topics
- Literature with practical tips and tricks, including: guidelines, product manuals, white papers

www.siemens.com/controlpanel/infocenter

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For more information, see www.siemens.com/panelbuilding

## Tools & data for digitalization in engineering

### Maximum efficiency for control panel design

With a range of tools and data-based services, we support you with the digitalization of your business and enable the leverage of all the advantages this offers for control panel design: greater efficiency, flexibility and quality – in every process phase!

- Intelligent selection, dimensioning and design
  www.siemens.com/controlpanel/cpd
  www.siemens.com/controlpanel/tools
- Control panel engineering
  www.siemens.com/controlpanel/engineering

## Harmonized product and system portfolio

### Effective savings in control cabinet design

Harmonized product and system portfolio saves construction time. With our coordinated, integrated portfolio of products that includes automation technology, drive train components, industrial controls and matching control panel enclosures, we can reduce your engineering overhead and ensure the harmonious interaction of all devices. These are extensively tested, and are all certified and available for use worldwide – enabling you to remain flexible within the global business environment.
Benefit also from our expert tips concerning control panels.
www.siemens.com/controlpanel/tips

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# Product highlights

**SIRIUS 3RW5 soft starters**
can be flexibly deployed in many applications

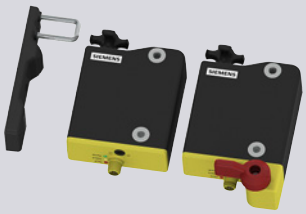
Type: 3RW5
Pages 6/15, 6/39, 6/55 and 6/73 onwards

**3RW55 system redundancy S2**
for PROFINET High-Feature communications module

Type: 3RW5950-0CH00
Page 6/10 onwards

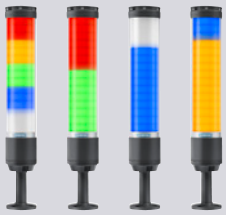
**SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e**

Type: 3RQ1
Page 5/21 onwards



**3SE64 RFID safety switches with tumbler**

Type: 3SE6415-1...
Page 12/122 onwards



**Electronically configurable 8WD46 signaling columns**

Type: 8WD4613, 8WD4615
Page 13/163 onwards

For more information, see www.siemens.com/sirius

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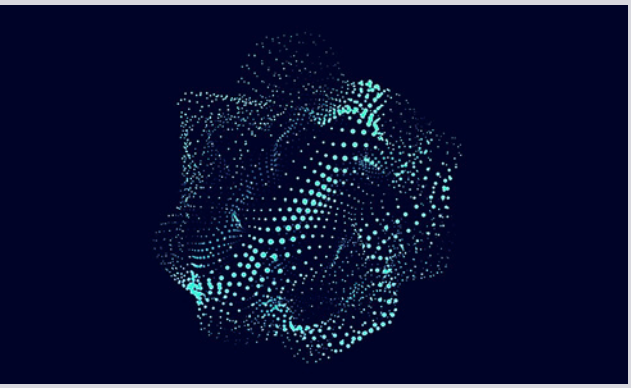

# Sustainability@SI

## An intelligent infrastructure is a sustainable infrastructure.

For more information, see www.siemens.com/sustainability-figures

As a company, Siemens considers environmental, social and governance (ESG) criteria from all angles with its DEGREE framework (decarbonization, ethics, governance, resource efficiency, equity and employability). We are not only committed to reducing the carbon footprint in our own operations to net zero by 2030, but also helping our customers achieve their decarbonization and sustainability goals. The main areas where Smart Infrastructure contributes to the DEGREE framework are decarbonization, resource efficiency and employability.

### Mission & strategy

As a focused technology company, Siemens is committed to addressing the world's most profound challenges by leveraging the synergies between digitalization and sustainability.

### Technology with aim and purpose

We develop technologies that connect the real and digital worlds and enable our customers to positively transform the industries that form the backbone of our economy: industry, infrastructure, transportation and healthcare.

### Our contribution

Siemens makes an impact every day by providing innovative solutions in response to challenges relating to environmental protection, decarbonization, health and safety. Innovative solutions that have a clear goal: to make the world more sustainable, more integrative and a better place to live.

### Sustainability facts

For almost 175 years, Siemens has been driven by the desire to improve the lives of people around the world with our technologies.

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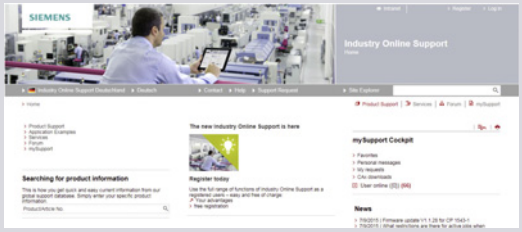
# Technical Support

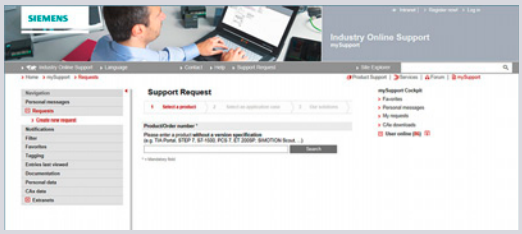
## One click – and you have all the information you need.




### Industry Online Support – get fast and up-to-date information online

www.siemens.com/online-support

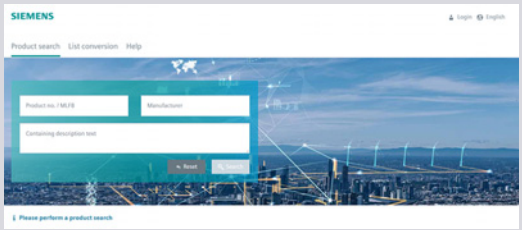
In Industry Online Support you will find FAQs, manuals, certificates, applications & tools, and much more




### Support Request – the fast track to the experts

www.siemens.com/support-request

Using the Support Request form in Online Support you can send your query directly to Technical Support.

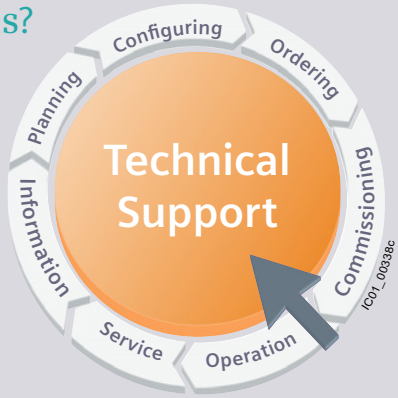



### Conversion tool – the easy and efficient way to find successor products

www.siemens.com/conversion-tool

## Any more questions?

Our experts are there to help you with competent technical advice.




Support Request:
www.siemens.com/support-request

**Competent and fast technical advice regarding:**

- Product selection
- Conversion from old to new
- Competitor conversion
- Special versions
- Particular requirements
- Commissioning
- Maintenance

**Further input channel for other topics:**

- Returned goods
- Field Service assignments
- Corrective maintenance needs
- Quality cases

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# Introduction

1/2 **Energy-efficient controls**
SIRIUS brings down energy costs

1/3 **Energy management with SIRIUS**
Integration into energy management software

1/4 **Systematic industrial safety technology**
SIRIUS Safety Integrated

1/8 **IE3/IE4 ready**
SIRIUS controls for reliable switching and protection of highly efficient IE3 and IE4 motors

1/9 **Innovative technology for saving energy**
Electronic starting with hybrid switching technology

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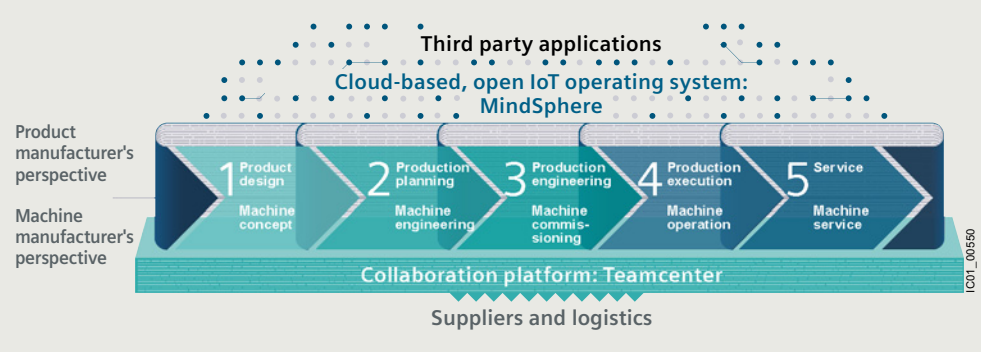
# Introduction
Energy-efficient controls

## SIRIUS brings down energy costs

### Overview

***Energy management in industry***




Product development and production process

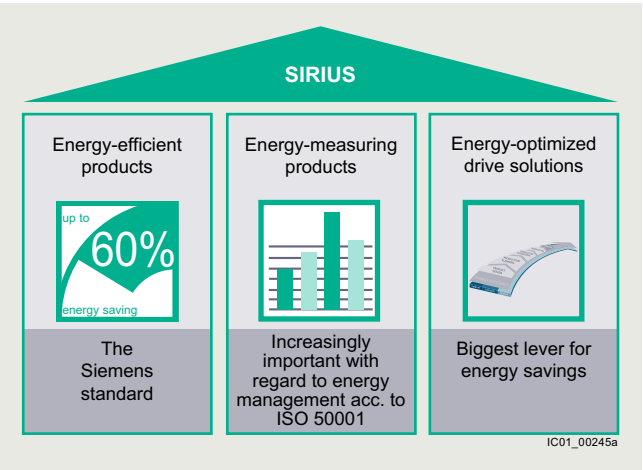
Whether you are a plant operator, planner or machine manufacturer: Energy-efficient production is a challenge and an opportunity in equal measure.

***Energy-efficient production as a success factor***

In order to harness energy potential, with our vast portfolio, we always maintain a clear view of the overall product development and production process. Because maximum energy efficiency in production can only be achieved through perfect interaction of all components.

That is why it is important to first create an awareness for existing energy-saving potential, recognize (identify) and assess (evaluate) opportunities for optimization through precise analysis. Finally, appropriate measures must be implemented (realized).

With our full-range portfolio of energy-efficient drive solutions, automation and services, you too will reach maximum energy efficiency, higher productivity and lasting competitiveness in your company.




Three columns of energy efficiency with products from the SIRIUS modular system

***Energy-efficient products – SIRIUS reduces power loss***

SIRIUS controls (3RM motor starter, 3RR2 monitoring relay, 3RB3 overload relay, 3RT2 contactor, 3RW soft starter and 3RV2 motor starter protector/circuit breaker) as well as the ET 200SP motor starters are characterized by extremely low intrinsic power loss. This not only lowers energy costs, but also reduces the amount of waste heat in the control cabinet. This then translates to a higher packing density and a reduction in the required cooling performance.

***Energy-measuring products***

Energy management can be instrumental in increasing plant productivity to bring about a significant improvement to the competitive ability of a company – in all industries.

Energy data acquisition represents an important component of the overall energy data management process here. Through transparency right down to the loads, it is possible to identify and utilize potential energy savings.

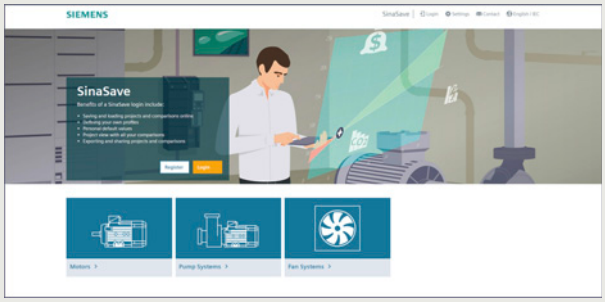
With communication-capable SIRIUS switching devices you can acquire energy data from the drive train without any additional effort.

SIRIUS controls help you make energy flows visible.

***Best drive solutions in terms of energy***

In order to design processes for optimal energy efficiency, it is not enough to simply measure the energy flow and deploy energy-efficient products. The greatest lever for saving energy can be derived from closely examining the application.

***SinaSave energy efficiency tool***




Amortization calculator for energy-efficient drive systems

The SinaSave energy efficiency tool determines energy saving potential and amortization times based on your individual conditions of use and therefore offers practical assistance in making decisions about investments in energy-efficient technologies.

In SinaSave, the drive systems to be compared and the relevant drive component parameters are displayed graphically. The various control types and comprehensive product combinations for drive solutions for pump and fan applications can be adapted in your application.

The product portfolio comprises not just SIRIUS controls, but also SIMOTICS motors and SINAMICS converters, thus offering a comprehensive range of comparison possibilities – according to your individual requirements.

SinaSave, the free amortization calculator for energy-efficient drives, see www.siemens.com/sinasave.

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## Overview

### *SIMATIC Energy Suite*

High energy consumption and automated production processes are typical for many industries.

If you want to keep your energy costs under control in the long term and you are already focusing on the digital future, it's a good idea to equip your plant with integrated energy measuring technology, thus anchoring energy management into the automation of your production processes – which is where most energy is consumed.

SIMATIC Energy Suite as an integrated option for the TIA Portal efficiently links energy management with automation, thus creating energy transparency in the production system.

The considerably simplified configuration of energy measuring components from the product families SIMATIC, SENTRON, SINAMICS, SIRIUS and SIMOCODE significantly reduces the configuration costs. For details on the currently supported devices, see www.siemens.com/energysuite-hardware.

Thanks to the end-to-end connection to SIMATIC Energy Manager PRO (innovative successor to SIMATIC B.Data) or cloud-based Service Energy Analytics, you can seamlessly expand the recorded energy data to create a cross-site energy management system.

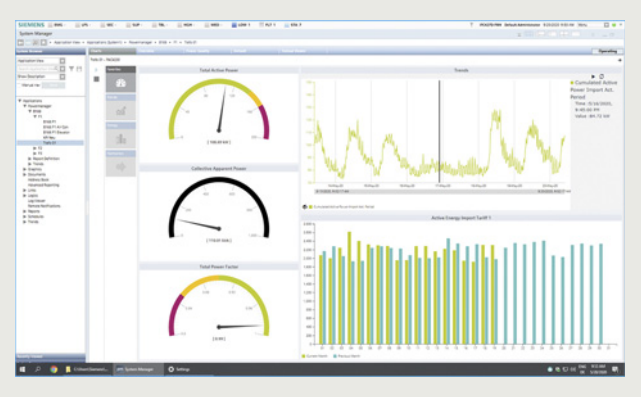
This also enables companies to fulfill all economic and energy management requirements – from purchasing of energy through planning to energy management.

The advantages at a glance:

- Simple and intuitive configuration instead of programming
- Automatic generation of the PLC energy program
- Convenient integration of measuring components from the Siemens portfolio and from the portfolios of other manufacturers
- Integrated in the TIA Portal and automation
- Archiving on WinCC Professional or PLC
- Seamless connection to Energy Manager PRO and Energy Analytics

For more information on SIMATIC Energy Suite, see www.siemens.com/energysuite.

### *SENTRON powermanager*



SENTRON powermanager

The SENTRON powermanager energy monitoring software displays important characteristic quantities for individual devices and the entire system on a clearly organized dashboard and thus analyzes the energy consumption.

The advantages at a glance:

- Analyzing energy flows: Cost-saving measures can be derived directly and faults can be localized rapidly – for greater awareness regarding energy consumption and lower costs.
- Easy to get started: Can be added to existing hardware and available infrastructure.
- Fast savings: Analyzes power curve and detects load peaks.
- High plant availability: Continuous monitoring of power distribution ensures that critical system states are detected at an early stage.

The SIRIUS 3RW55 soft starter is integrated into SENTRON powermanager by simple installation of an XML file, see https://support.industry.siemens.com/cs/ww/en/view/109798105

For more information on SENTRON powermanager, see www.siemens.com/powermanager.

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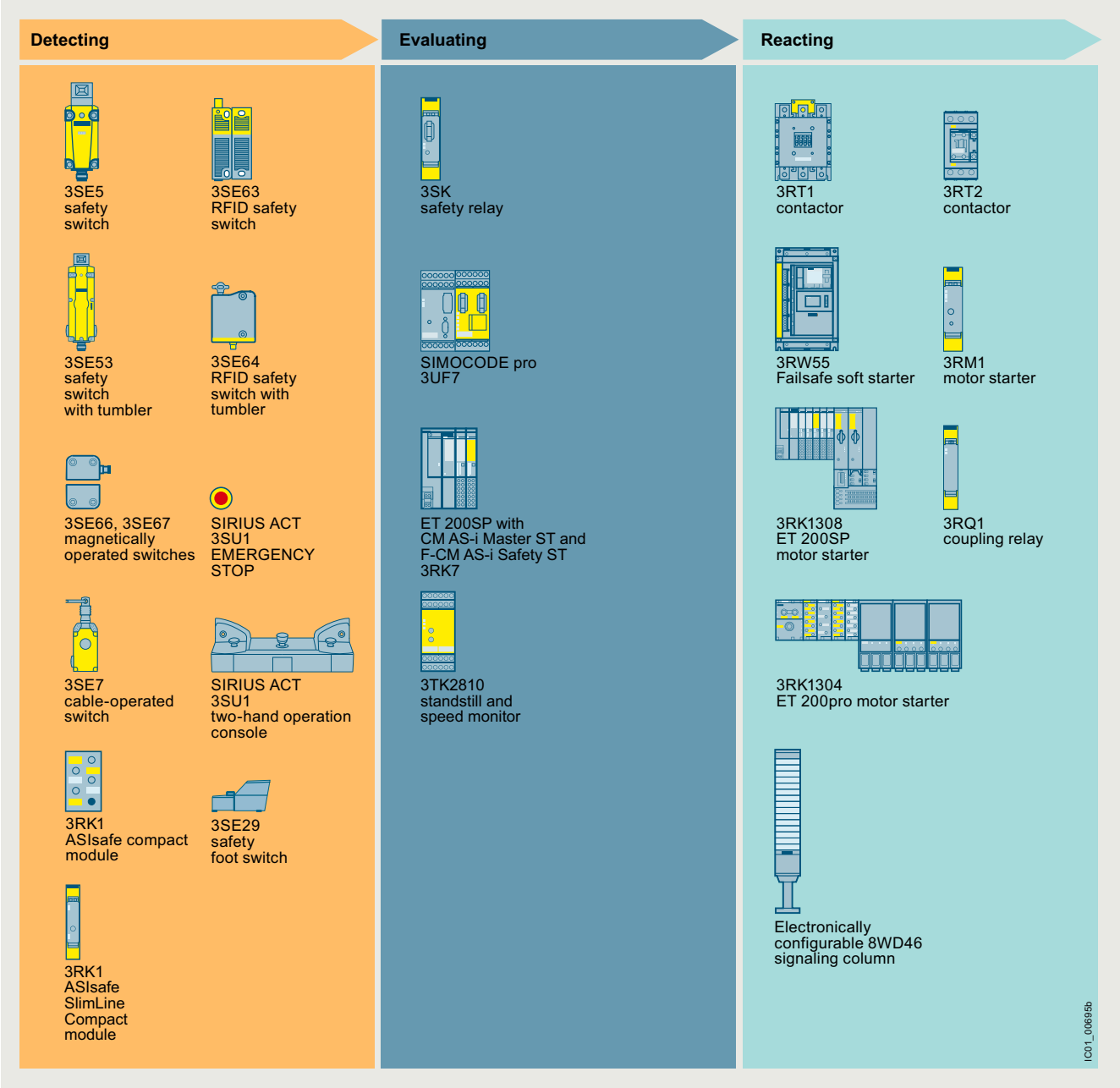
## Overview




SIRIUS Safety Integrated

Manufacturers and operators of machines must fulfill numerous requirements: reducing costs, improving productivity, and ensuring the safety of machines. The industrial safety technology from Siemens offers innovative, economical solutions for the functional safety of machinery.

***Machine safety – compliance with directives***

Before any machines or plants can be supplied or operated, they must meet the fundamental safety requirements of the EU Directives. Similar requirements apply in many other countries and markets.

To guarantee conformity with these requirements, it is recommended that the correspondingly harmonized standards IEC 62061 or ISO 13849-1 are applied. This gives manufacturers and operators legal certainty regarding compliance with both national regulations and directives, which are confirmed by the manufacturer of a machine.

The aim of safety technology is therefore to allow people, machines and the environment to be protected and statutory safety requirements to be satisfied.

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***The quick and easy way to safe machinery***

In addition to the statutory regulations governing the protection of people there are also economic reasons for avoiding personal injury and the resulting downtimes, and for protecting both machinery and equipment from damage.

Safety Integrated benefits machine manufacturers and plant operators in many ways:

- Lower costs for hardware, assembly and engineering
- Higher availability thanks to faster diagnostics and fewer downtimes

At the same time, using modular safety concepts allows them to modernize their plants more easily and at lower cost.

***Smart controls ensure the functional safety of machinery***

Our SIRIUS Safety Integrated controls are a central element of the Siemens Safety Integrated concept, based on Totally Integrated Automation.

SIRIUS Safety Integrated, see www.siemens.com/safety-integrated.

Whether for reliable detecting, evaluating and reacting, our SIRIUS Safety Integrated controls (page 1/6 onwards) provide cost-effective solutions for the safety of your machine or plant. Take the SIRIUS 3SK safety relays for example: They are modularly expandable, and can integrate compact motor starters such as the fail-safe SIRIUS 3RM1 very simply via the device connector (parameterization is performed easily with a screwdriver on the DIP switches or by drag and drop in the engineering software).

The SIMOCODE pro modular motor management system combines all required protection, monitoring, safety and control functions for motor feeders. It can be connected to fail-safe controllers via PROFIBUS or PROFINET and shut down motors in emergency situations.

SIRIUS Safety Integrated uses fail-safe communication via standard fieldbus systems, such as ASIsafe via AS-Interface and PROFIsafe via PROFIBUS and PROFINET, to solve even networked safety tasks of greater complexity. This opens the door to flexible safety solutions for compact machines or large-scale plants – naturally compliant with current standards up to SIL 3/PL e.

The first integrated ASIsafe connection to the distributed I/O system ensures even more consistency. With the SIMATIC AS-i F-Links, AS-i networks can be connected quite simply to safety controls via PROFIsafe via the SIMATIC ET 200SP.

Particular highlights are the 3RT contactors of sizes S2 to S12 with fail-safe control input, the SIRIUS ACT 3SU1 EMERGENCY STOP with PROFINET or PROFIsafe interface, and the fail-safe motor starters for ET 200SP (page 8/94 onwards) and the 3RW55 fail-safe soft starters (page 6/39 onwards). With these products, seamless integration into fail-safe control systems is possible.

The Application Manual SIRIUS Safety Integrated (SIAM Safety Integrated Application Manual) provides users with comprehensive application examples for SIRIUS Safety Integrated products, see https://support.industry.siemens.com/cs/ww/en/view/81366718.

***Your partner for machine and plant safety***

With Safety Integrated, Siemens has provided the smart answer to constantly increasing requirements for the functional safety of a machine and for its cost-effectiveness and flexibility. Our comprehensive portfolio of safe controls, control technology and drive technology provides scalable solutions for precisely tailored safety concepts for protecting people, machines and the environment. Our products meet the current safety standards in the industry, including IEC, ISO, NFPA and UL.

As a partner for machine and plant safety, Siemens also supports users with examples of functions and up-to-date know-how concerning international standards and directives.

The Safety Selector (www.siemens.com/safety-selector) thus guides the user to the appropriate application example based on selection criteria to be assigned.

The free safety evaluation for evaluating safety functions in accordance with IEC 62061 and ISO 13849-1 is integrated in the TIA Selection Tool, see www.siemens.com/safety-evaluation.

Thus, the selection of components and their safety-related assessment are implemented in a coherent workflow.

Requirements-based training on CE marking, functional safety, risk assessment, and on our Safety Integrated products rounds off our portfolio, see www.siemens.com/sitrain.

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# Introduction
Systematic industrial safety technology

## SIRIUS Safety Integrated

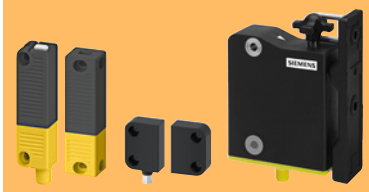
### Devices with safety functions

#### Detecting


**3SE position and safety switches** 12/2

Flexible thanks to modular design, suitable for offshore applications

**3SE6 non-contact safety switches** 12/4



Magnetically operated switches (IP67) and RFID safety switches (IP69)

**3SU11 EMERGENCY STOP mushroom pushbuttons, 3SU18 two-hand operation console** 13/26, 13/50, 13/106

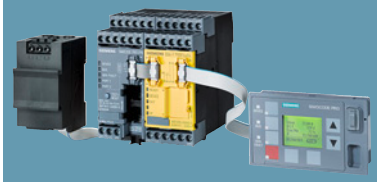
- SIRIUS ACT two-hand operation console with user-friendly capacitive sensor keys
- High level of flexibility due to direct integration of the SIRIUS ACT EMERGENCY STOP via standardized, fail-safe communication protocols (PROFIsafe, ASIsafe)

**3SE7 cable-operated switches, 3SE29 safety foot switches** 13/156, 13/161

- Foot switches with cover, metal enclosure with degree of protection IP65
- Cable-operated switches with latching and positive-opening NC contacts, in degree of protection IP65 or IP67


#### Evaluating


**SIMOCODE pro 3UF7** 10/5



Fail-safe expansion modules DM-F Local and DM-F PROFIsafe, safe shutdown of motors up to SIL 3/PL e

**3SK safety relays** 11/13

Key modules of a consistent and cost-effective safety chain. Flexible thanks to input and output expansion units

**3TK2810 safety relays** 11/33

Further modules of a consistent and cost-effective safety chain for fail-safe detection of standstill or speed


#### Reacting


**3RQ1 coupling relays** 5/21

SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e

**3RW55 Failsafe soft starters** 6/39

3RW55 Failsafe High Performance soft starters with STO

**SIRIUS 3RM1 motor starters** 8/83

Compact, narrow and fail-safe hybrid motor starters in IP20

Easy configuration and low outlay for storage thanks to wide setting range of the overload release

**ET 200SP fail-safe motor starters** 8/94

Compact, fail-safe hybrid motor starters for the ET 200SP system

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## Devices with safety functions for AS-Interface

### Detecting

Product — Page

**Safety modules/EMERGENCY STOP mushroom pushbuttons**

- K45F and K20F compact safety modules for use in the field — 2/26

- SC17.5F SlimLine Compact safety modules for use in the control cabinet — 2/26

- 3SU1 EMERGENCY STOP mushroom pushbuttons in the enclosure for AS-Interface — 13/100

Detection of safety-related signals via safe input slaves on the AS-Interface bus (field modules with degree of protection IP67, control cabinet modules with degree of protection IP20, EMERGENCY STOP mushroom pushbuttons in the enclosure with integrated ASIsafe slave with degree of protection IP69)

**3SF1 mechanical safety switches** — 12/93

Flexible thanks to modular design, degree of protection up to IP69, suitable for offshore applications

### Evaluating

Product — Page

**CM AS-i Master ST, F-CM AS-i Safety ST for SIMATIC ET 200SP** — 2/29, 2/34

Evaluation and processing of signals via a fail-safe SIMATIC or SINUMERIK control.

Simple combination of the CM AS-i Master ST and F-CM AS-i Safety ST modules in one ET 200SP station results in a powerful, safety-oriented network transition between PROFINET (or PROFIBUS) and AS-Interface.

### Reacting

Product — Page

**ET 200pro Safety motor starters Solution PROFIsafe** — 9/3

Communication-capable motor starters with high degree of protection IP65

Special safety modules enable the highest safety levels

**3RT contactors from 18.5 kW (F-PLC input)**

Optimum connection to the fail-safe controller as actuator in the safety chain

Considerable simplification of the application in large power ranges thanks to F-PLC input on the following contactors:

3RT203 and 3RT204, 3RT105 to 3RT107, 3RT145 to 3RT147 — 3/62, 3/65, 4/18

**Electronically configurable 8WD46 signaling columns** — 13/163

Flexible and versatile thanks to modular design

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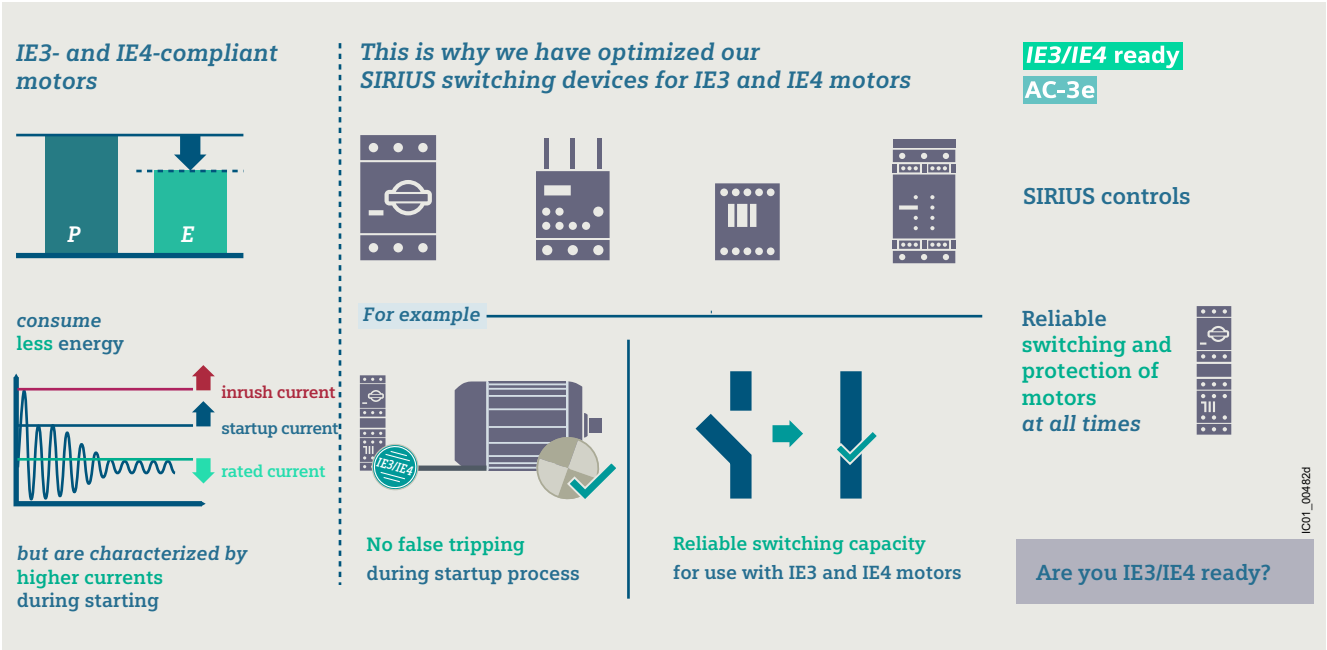
# Introduction
IE3/IE4 ready

## SIRIUS controls for reliable switching and protection of highly efficient IE3 and IE4 motors

### Overview




IE3/IE4 ready with SIRIUS controls

***We are IE3/IE4 ready and have AC-3e values***

On July 1, 2021, the new EU Regulation (EU) 2019/1781 on electric motors and speed controls came into force. This regulation requires:

- Compliance with the legally required minimum efficiency levels IE3 for outputs from 0.75 to 1000 kW

In the next stage as of July 1, 2023:

- Compliance with the legally required minimum efficiency levels IE4 for outputs between 75 and 200 kW.

From an electrical viewpoint, IE3 and IE4 motors behave differently than less energy-efficient models – they are characterized by higher startup currents and modified dynamic behavior. This entails certain challenges for our controls.

The SIRIUS switching and protection devices are ideally suited for use with Premium High Efficiency motors (IE3) or Super Premium Efficiency motors (IE4). This is further underlined by the new utilization category AC-3e for contactors, circuit breakers, motor starters and other devices.

They avoid false tripping due to higher inrush currents of IE3 and IE4 motors, offer optimized setting ranges for rated currents, and ensure reliable switching and protection in any situation – the best prerequisites for the use of modern IE3 and IE4 motors.

***Highlights***

- Comprehensive range of IE3 and IE4 motors for every application
- Siemens offers expertise through extensive analysis of IE3 and IE4 motors
- Optimized SIRIUS controls for use with IE3 and IE4 motors
- Easy selection thanks to consistently identical rated values of utilization categories AC-3 and AC-3e

***Introduction of utilization category AC-3e***

Video: What is the purpose of the utilization category AC-3e?

***More information***

Application Manual for controls with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820.

All IE3/IE4 ready products are marked in the catalog with the symbol **IE3/IE4 ready**.

All products with the utilization category AC-3e are marked in the catalog with the symbol **AC-3e**.

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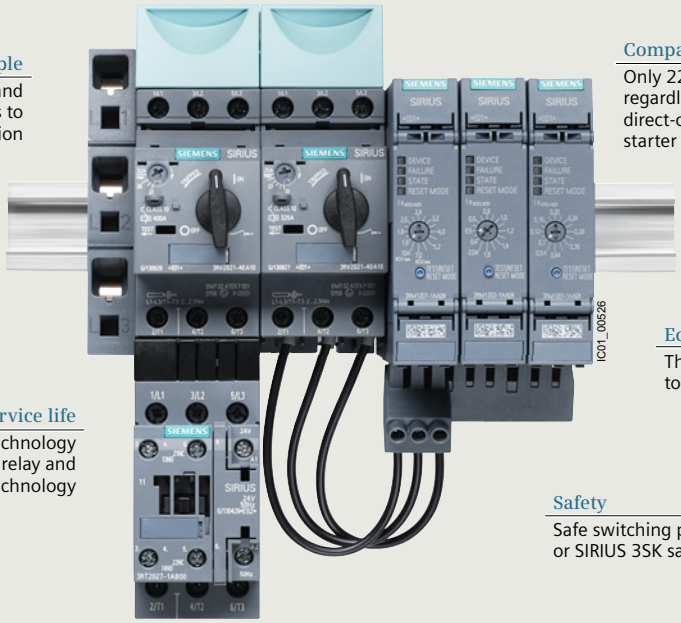
## Overview

### *SIRIUS 3RV29 infeed system with 3RA2 load feeder and 3RM1 motor starter*




The hybrid switching technology uses low-wear semiconductor technology for switching the motor on and off, and in the operating phase it relies on energy-saving relay technology.

This ensures durability, especially with high switching frequency, and thus significantly reduces maintenance costs and extends the life of the motor starters.

In addition, due to the hybrid switching technology, motor starters have lower electromagnetic interference emissions, enabling you to increase your plant availability.

Further energy savings are provided by the integrated electronic overload protection.

This causes a lower intrinsic power loss than comparable motor feeders with thermal overload protection.

In this way, you benefit from reduced heat generation and therefore lower cooling power. And that saves energy.

### *SIRIUS soft starters 3RW30, 3RW40, 3RW50,3RW52, 3RW55 and 3RW55 Failsafe*

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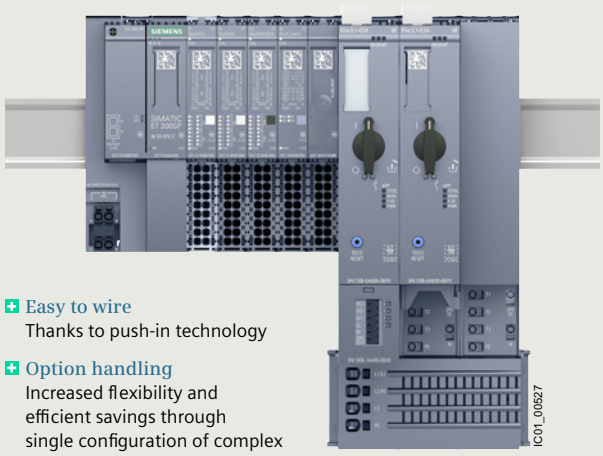
# Introduction
Innovative technology for saving energy

## Electronic starting with hybrid switching technology




**Easy to wire**
Thanks to push-in technology

**Option handling**
Increased flexibility and efficient savings through single configuration of complex automation projects

**Reduced space requirements**
50% slimmer than other distributed I/O systems

**Hybrid switching technology**
Durable and energy saving, since relay contacts are not subject to loading when switched

**Power bus**
Supply with power only once, then automatic setup with side-by-side mounting of multiple modules

**Quick stop and end position disconnection**
Load switch off even at high speed – independent of central controller

**Quick installation**
Hook in, slide into place and engage

Once it is installed and wired, you simply connect the ET 200SP motor starter to the controller in the TIA Portal ready for parameterization.

***Highlights***

Use of hybrid switching technology for:

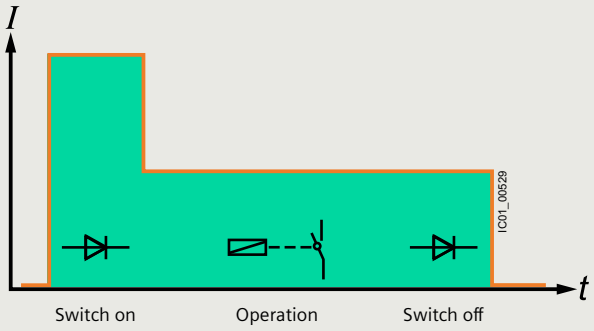
- SIRIUS 3RM1 motor starters
- ET 200SP motor starters
- SIRIUS soft starters

Failsafe functionality for SIRIUS 3RW55 soft starters, SIRIUS 3RM1 motor starters and ET 200SP:

- Maximum safety:
  Safety function up to SIL 3/PL e

Additional benefits for SIRIUS 3RM1 motor starters:

- Using device connectors safety-related group shutdown with reduced wiring is possible
- Direct connection to the 3SK safety relay, without additional wiring




Service life

Plant availability

Energy saving

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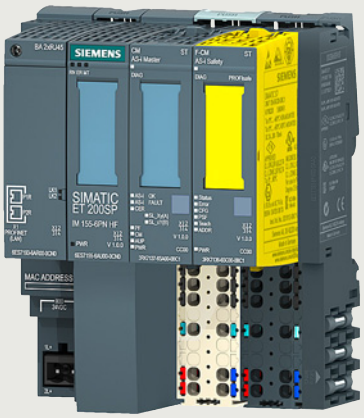


**Price groups**

PG 212, 219, 230, 250, 254, 255, 256, 257, 41B, 41L, 42C, 42D, 5K1, 5K2

**Introduction**

2/3 AS-Interface
2/13 IO-Link

**AS-Interface**

Introduction
2/19 Communications overview
2/21 System components

AS-Interface specification
2/22 - Specification V3.0
2/23 - AS-i Power24V

ASIsafe
2/24 Introduction
2/25 AS-i safety solution with F-CPU and AS-i in ET 200SP
2/34 F-CM AS-i Safety ST for SIMATIC ET 200SP
2/26 AS-Interface safety modules
12/93 SIRIUS 3SF1 mechanical safety switches for AS-Interface

SIRIUS ACT pushbuttons and indicator lights
13/88 - Modules: AS-Interface modules for mounting on the front plate or in the enclosure
13/100 - Pushbuttons and indicator lights in the enclosure for AS-Interface

Masters

Masters for SIMATIC ET 200
2/29 - CM AS-i Master ST for SIMATIC ET 200SP
2/34 - F-CM AS-i Safety ST for SIMATIC ET 200SP

Masters for SIMATIC S7
2/37 - CM 1243-2
2/39 - CP 343-2P/CP 343-2

Routers
2/41 DP/AS-Interface Link 20E

Slaves

I/O modules for use in the field, high degree of protection
2/44 - Digital I/O modules, IP67 - Introduction
2/45 - Digital I/O modules, IP67 - K60
2/47 - Digital I/O modules, IP68/IP69 - K60R
2/50 - Digital I/O modules, IP67 - K45
2/52 - Digital I/O modules, IP67 - K20
2/54 - Analog I/O modules, IP67 - K60

I/O modules for use in the control cabinet
2/57 - Introduction
2/58 - SlimLine Compact
2/62 - F90 module
2/63 - Flat module

Modules with special functions
2/64 - Counter modules
2/65 - Ground-fault detection modules
2/66 - Overvoltage protection modules

Contactors and contactor assemblies
3/18 - SIRIUS 3RT contactors, 3-pole up to 250 kW
3/142 - SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW
3/158 - SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW
3/101 - SIRIUS 3RA27 function modules

Motor starters for use in the control cabinet
8/57 - SIRIUS 3RA6 compact starters: 3RA61 direct-on-line starters, 3RA62 reversing starters
9/21 Motor starters for use in the field, high degree of protection
- SIRIUS M200D motor starters for AS-Interface
D 31.2[1)] SINAMICS G115D distributed converters

SIRIUS ACT pushbuttons and indicator lights
13/88 - Modules: AS-Interface modules for mounting on the front plate or in the enclosure
13/100 - Pushbuttons and indicator lights in the enclosure for AS-Interface
13/170 SIRIUS 8WD42 and 8WD44 signaling columns

1) See Catalog D 31.2.

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Power supply units and data decoupling modules
2/67 AS-Interface power supply units
2/69 30 V power supply units
15/1[1)] 24 V power supply units
2/71 S22.5 data decoupling modules
Data decoupling modules for S7-1200
2/73 - DCM 1271 data decoupling module
Transmission media
2/76 AS-Interface shaped cable
System components and accessories
2/77 Repeaters
2/79 Extension plugs
2/80 Addressing units
2/82 Analyzer
2/86 Miscellaneous accessories
2/12 Diagnostics
Software
14/19 AS-Interface block library for SIMATIC PCS 7

**IO-Link**
Introduction
2/88 Communications overview
2/90 System components
2/96 IO-Link specification
Masters
IO-Link master module for S7-1500
2/97 - CM 8xIO-Link
IO-Link master module for S7-1200
2/98 - SM 1278 4xIO-Link master
IO-Link master module for ET 200SP
2/99 - CM 4xIO-Link V1.1 Standard
IO-Link master module for ET 200pro
2/100 - 4 IO-Link HF
IO-Link master module for ET 200eco PN
2/101 - IO-Link master modules
IO-Link master module for ET 200AL
2/102 - CM IO-Link
IO-Link digital modules
2/103 IO-Link I/O modules

Contactors and contactor assemblies
3/18 - SIRIUS 3RT contactors, 3-pole up to 250 kW
3/142 - SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW
3/158 - SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW
3/101 - SIRIUS 3RA27 function modules
Overload relays
7/127 SIRIUS 3RB24 electronic overload relays for IO-Link for high-feature applications
Motor starters for use in the control cabinet
SIRIUS 3RA6 compact starters for IO-Link
8/67 - 3RA64 direct-on-line starters
8/68 - 3RA65 reversing starters
Monitoring relays
10/55 SIRIUS 3RR24 monitoring relays for mounting on 3RT2 contactors for IO-Link
10/96 SIRIUS 3UG48 monitoring relays for stand-alone installation for IO-Link
10/119 SIRIUS 3RS28 temperature monitoring relay for IO-Link
SIRIUS ACT pushbuttons and indicator lights
13/12 SIRIUS ACT 3SU1 ID key-operated switches for IO-Link
13/89 SIRIUS ACT 3SU1 solid-state modules for IO-Link
SIRIUS 8WD4 signaling columns
13/163 Electronically configurable 8WD46 signaling columns, 70 mm diameter NEW
13/170 8WD44 signaling columns, 70 mm diameter
13/177 - 8WD44 IO-Link adapter element
ID 10[2)] RFID systems
2/95 IO-Link Device Description (IODD)
2/95 IO-Link Software

1) See also Catalog KT 10.1.
2) See Catalog ID 10.

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## Overview

**More information**

Homepage, see www.siemens.com/as-interface
Industry Mall, see www.siemens.com/product?as-interface
TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=AsInterface
System Manual for AS-Interface, see https://support.industry.siemens.com/cs/ww/en/view/26250840

AS-Interface

| AS-i = simple! | AS-i = flexible! | AS-i = efficient! |
|---|---|---|
| • Only one cable for data and energy | • Flexible topologies | • User-friendly addressing |
| • Time-saving assembly/installation | • Open standard | • Fast device replacement |
| • Engineering in the TIA Portal | • Expandability | • Ruggedness and stability |
| • User-friendly maintenance | • Safety engineering | • Device and network diagnostics |

IC01_00210

***AS-Interface – the smart communication standard for universal connection of the field level to the control system***

The AS-Interface (AS-i) – the Actuator-Sensor-Interface, to be more precise – is a smart bus system for the field level that connects all the sensors and actuators in the field to the higher-level control system more simply, flexibly and efficiently than any other.

The structure of a complex automation system is not always clear at first glance. The field level in particular, with its large numbers of devices with real-time requirements, needs a clear structure.

That is exactly what the AS-i fieldbus delivers: Via a simple twisted pair – the yellow AS-i cable – in an AS-i network up to 62 bus nodes can be connected to the AS-i master and simultaneously supplied with power. The standard here is robust data transmission in a rugged environment with a high degree of protection for the AS-Interface.

AS-i from Siemens has everything in its favor

- Complete AS-i product range for bus-based standard and safety technology from a single source
- System-wide integration of the AS-i devices into SIMATIC, SINUMERIK and the TIA Portal engineering framework
- Integration of ASIsafe applications into SIMATIC F controller safety programming
- Central configuration of standard and safety technology in the TIA Portal and in STEP 7 (Classic) – just one engineering framework for controller, AS-i master and safety
- Quick diagnostics of master and slave components via web browser, HMI or TIA Portal
- Planning, calculation and verification of the whole safety chain based on AS-i Safety with Safety Evaluation in the TIA Selection Tool, see www.siemens.com/safety-evaluation
- Integration of lower-level AS-i networks into the PCS 7 process control system
- Global spare parts logistics, consulting and service

| | Article No. | Page |
|---|---|---|
| **ASIsafe** | | |
| ASIsafe enables integration of safety-related components in an AS-Interface network, for example:<br>• EMERGENCY STOP pushbuttons<br>• Protective door switches<br>• Cable-operated switches<br>• Other AS-i safety sensors<br>Your advantage: The simple wiring of AS-Interface is maintained. | | |
| <br>AS-i Master and AS-i Safety module<br>**AS-i Master and AS-i Safety module for ET 200SP**<br>The CM AS-i Master ST and F-CM AS-i Safety ST modules are plugged into an ET 200SP configuration and connect an AS-i network, including safety-related inputs and outputs, with the controller.<br>• Single, double and multiple masters possible<br>• Per CM AS-i Master ST module up to 496 DI/496 DQ/124 AI/124 AQ possible<br>• Per F-CM AS-i Safety ST module up to 31 safe input signals (2-channel)/16 safe output channels possible<br>• Configuring with TIA Portal or STEP 7 (Classic)<br>• Plant-wide safety programming of the F-CPU via SIMATIC Distributed Safety/ Safety Advanced/F Systems<br>• Integrated diagnostics<br>• No other programming tools required<br>Your advantage: Modular connection of fail-safe AS-i networks with system-wide programming in SIMATIC and SINUMERIK controllers. | **6ES7** | From 2/29 |

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| | | Article No. | Page |
|---|---|---|---|
| **ASIsafe (continued)** | | | |
| K45F<br> SC17.5F | **AS-Interface safety modules**<br>• Complete portfolio of ASIsafe modules<br>• For connection of safety switches with contacts (e.g. position switches)<br>• Degree of protection IP65/IP67 or IP20<br>• Especially compact dimensions, with widths from 17.5 mm<br>• Up to four safe inputs per module<br>• Standard outputs are available on the module in addition<br>• Up to SIL 3/PL e<br>Your advantage: Easy integration of safe signals both in the switching cabinet and in the field. | **3RK1** | From 2/26 |
| Safety switch | **SIRIUS 3SF1 mechanical safety switches for AS-Interface**<br>• Plastic with degree of protection IP65 and metal with degree of protection IP66/IP67<br>• ASIsafe electronics integrated into the enclosure<br>• Available with separate actuator, with or without tumbler<br>Your advantage: Conventional wiring of safety functions no longer required. | **3SF1** | From 12/93 |
| EMERGENCY STOP mushroom pushbutton in enclosure | **SIRIUS ACT EMERGENCY STOP mushroom pushbuttons for AS-Interface**<br>• Degree of protection IP66/IP67/IP69 (IP69K)<br>• Metal or plastic version<br>• Connection of an EMERGENCY STOP command device according to ISO 13850 to AS-Interface<br>• Safety-related AS-Interface module is snapped onto the command device from behind<br>• Can be used up to SIL 3/PL e<br>Your advantage: Easy direct connection of control elements to ASIsafe. | **3SU14 modules**<br>**3SU18 enclosure** | 13/88<br>From 13/100 |

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| | | Article No. | Page |
|---|---|---|---|
| **Masters** | | | |
| | The AS-Interface master connects SIMATIC controllers to AS-Interface. It automatically organizes the data traffic on the AS-Interface cable and handles not only signal processing, but also parameter setting, monitoring and diagnostics functions. | | |
| | **Masters for SIMATIC ET 200** | | |
| CM AS-i Master ST for SIMATIC ET 200SP | CM AS-i Master ST for SIMATIC ET 200SP<br>• Connection of up to 62 AS-Interface slaves per master<br>• Connection of up to 496 inputs and 496 outputs per AS-Interface network<br>• Integrated analog value transmission<br>• Simple configuration by adopting the ACTUAL configuration on the AS-Interface network<br>• Easy operation in the input/output address range of the SIMATIC (or other controller) comparable to standard I/O modules<br>• Monitoring of the control supply voltage on the AS-Interface shaped cable<br>• Integrated ground-fault monitoring<br>Your advantage: Easy connection of AS-i networks to distributed I/Os. | **3RK7** | From 2/29 |
| F-CM AS-i Safety ST for SIMATIC ET 200SP | F-CM AS-i Safety ST for SIMATIC ET 200SP<br>• Monitoring of up to<br>- 31 fail-safe AS-i input slaves per F-CM<br>- 16 fail-safe AS-i outputs per F-CM<br>• Transmission via PROFIsafe into the F-CPU for safety-related applications up to SIL 3 (IEC 62061)/PL e (ISO 13849-1)<br>• As a result, these sensors become part of the "unlimited programming and data archiving" options of SIMATIC and of Safety Integrated.<br>Your advantage: Easy connection of fail-safe AS-i networks to the distributed I/Os. | **3RK7** | From 2/34 |
| | **Masters for SIMATIC S7** | | |
| CM 1243-2 for SIMATIC S7-1200 | AS-Interface master connections:<br>• CM 1243-2 for SIMATIC S7-1200 | **3RK7** | From 2/37 |
| CP 343-2, CP 343-2P for SIMATIC S7-300 | • CP 343-2P, CP 343-2 for SIMATIC S7-300 and ET 200M<br>Features:<br>• Connection of up to 62 AS-Interface slaves<br>• Connection of up to 496 inputs and 496 outputs per master or AS-Interface network<br>• Integrated analog value transmission<br>• Simple configuration by adopting the ACTUAL configuration on the AS-Interface network<br>• Easy operation in the input/output address area of the SIMATIC S7 comparable to standard I/O modules<br>• Monitoring of the control supply voltage on the AS-Interface shaped cable<br>Your advantage: Easy connection to SIMATIC controllers. | **6GK7** | From 2/39 |
| **Routers** | | | |
| DP/AS-Interface Link 20E | • Degree of protection IP20<br>• PROFIBUS slave and AS-Interface master<br>• Connection of up to 62 AS-Interface slaves per AS-Interface network<br>• Connection of up to 496 inputs and 496 outputs per AS-i network<br>• Integrated analog value transmission<br>• Configuring and uploading of AS-Interface configuration in STEP 7 possible<br>• User-friendly selection of AS-Interface slaves<br>Your advantage: Compact transition to PROFIBUS<br>A high-performance router can be set up between PROFINET and AS-Interface by combining the CM AS-i Master ST and FF-CM AS-i Safety ST modules (for safety-related applications) in an ET 200SP station, see pages 2/32 and 2/36. | **6GK1** | From 2/41 |

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## Slaves

Slaves contain the AS-Interface electronics and connection options for sensors and actuators in the field and in the control cabinet. A total of up to 62 slaves can be connected to one bus. The slaves then exchange their data in cyclic mode with a control module (master).

| | Article No. | Page |
|---|---|---|
| **I/O modules for use in the field, high degree of protection** | | |
| Digital I/O modules, IP67 - K60, K60R, K45 and K20 | **3RK1, 3RK2** | From 2/44 |
| • Degree of protection IP65/IP67 or IP68/IP69 (IP69K) | | |
| • Modules available with up to degree of protection IP68/IP69 (IP69K) | | |
| • Connection sockets in M8/M12 | | |
| • Up to eight inputs and four outputs | | |
| • A/B technology available | | |
| • Contacting protected against polarity reversal | | |
| • DIN-rail mounting and wall mounting possible | | |
| • Mounting of the module on the base plate using just one screw | | |
| • Diagnostics LEDs | | |
| Your advantage: Reduction of mounting and startup times by up to 40%. | | |
| Analog I/O modules, IP67 - K60 | **3RK1** | From 2/54 |
| • Degree of protection IP65/IP67 | | |
| • Detects or transmits analog signals locally | | |
| • 2-/4-channel | | |
| • Input modules for up to four current measurement, voltage measurement or resistance/thermal resistance modules | | |
| • Output modules for current or voltage | | |
| Your advantage: Easy integration of analog values. | | |

K20 digital module

K45 digital module

K60 digital module

K60 analog module

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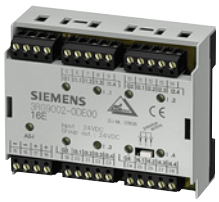
| | | Article No. | Page |
|---|---|---|---|
| **Slaves (continued)** | | | |
| SlimLine Compact SC17.5 SlimLine Compact SC22.5  F90 module Flat module | **I/O modules for use in the control cabinet**<br>• Degree of protection IP20<br>• No M12 plugs required for connection<br>• Especially narrow design for SlimLine Compact modules with widths of 17.5 mm and 22.5 mm<br>• Analog modules are also available<br>• Removable, finger-safe terminal blocks that cannot be inadvertently interchanged when using the SlimLine Compact modules<br>• Flat design of the flat modules for small control cabinets and confined conditions<br>• Connection with screw terminals or spring-loaded terminals<br>• DIN-rail mounting and wall mounting possible<br>• Diagnostics LEDs<br>Your advantage: Modules enable space-saving use in control cabinets and small local control boxes. | **3RG9, 3RK1, 3RK2** | From 2/57 |
| | **Modules with special functions** | | |
| Counter module | Counter modules<br>• Degree of protection IP20<br>• For evaluation of pulses<br>• Connection with screw terminals or spring-loaded terminals<br>Your advantage: Evaluation of pulses which exceed even the clock frequency of AS-Interface. | **3RK1** | 2/64 |
| Ground-fault detection module | Ground-fault detection modules<br>• Degree of protection IP20<br>• Display using LEDs<br>• Two signaling outputs<br>Your advantage: Automatic diagnostics of ground faults on AS-Interface. | **3RK1** | 2/65 |
| Overvoltage protection module | Overvoltage protection modules<br>• Degree of protection IP67<br>• Discharge through ground cable with oil-proof outer sheath<br>• Protection at transition of lightning protection zones<br>Your advantage: The AS-Interface overvoltage protection module protects downstream AS-Interface devices or individual sections in AS-Interface networks from conducted overvoltages. | **3RK1** | 2/66 |

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| | | Article No. | Page |
|---|---|---|---|
| **Slaves (continued)** | | | |
| SIRIUS contactor 3RT203.-1NB30-0CC0 | **Contactors and contactor assemblies**<br>SIRIUS 3RT contactors, 3-pole up to 250 kW<br>SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW<br>SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW<br>• Notable reduction of wiring in the control circuit<br>• Integrated mechanical interlocking<br>• Prevention of wiring errors in the main circuit | **3RT20**<br>**3RA23**<br>**3RA24** | From 3/18<br>From 3/142<br>From 3/158 |
| SIRIUS 3RA2712 function module | SIRIUS 3RA27 function modules<br>• Connection of 3RT20 power contactors with communication capability, 3RA23 reversing contactor assemblies, and 3RA24 contactor assemblies for star-delta (wye-delta) starting to AS-Interface<br>• Reduction of control current wiring through plug-in design and integrated monitoring of circuit breaker/motor starter protector and contactor<br>• Reduced space requirement in the control cabinet through fewer digital inputs and outputs in the control system<br>• Easy configuration through operation of feeders instead of individual contactors<br>• Enhanced operational reliability and quick wiring thanks to spring-loaded terminals<br>• Small number of variants through use of identical modules for size S00 to S3 contactors<br>Your advantage: Shortening of mounting and startup times. | **3RA2712** | From 3/101 |
| 3RA61 compact starter | **Motor starters for use in the control cabinet**<br>SIRIUS 3RA6 compact starters<br>3RA61 direct-on-line starters, 3RA62 reversing starters<br>• Degree of protection IP20<br>• Very compact load feeders with the integrated functionality of an electronic overload relay<br>• As direct-on line or reversing starters for motors up to 15 kW/400 V<br>• Easy expansion into a communication-capable load feeder using AS-i add-on modules<br>• On-site safe disconnection also possible using AS-i add-on modules<br>• Standardized integration of the loads in higher-level control systems using AS-i<br>Your advantage: Compact solution with minimum wiring outlay for actuating direct-on-line and reversing starters in the control cabinet. | **3RA6**<br>**3RA61, 3RA62** | From 8/57<br>From 8/65 |
| SIRIUS M200D motor starter | **Motor starters for use in the field, high degree of protection**<br>SIRIUS M200D motor starters for AS-Interface<br>• High degree of protection IP65 for cabinet-free design<br>• As direct-on line or reversing starters for motors up to 5.5 kW/400 V<br>• Mechanical or electronic switching for high switching frequencies<br>• Optional with manual operation and brake actuation<br>• Expanded diagnostics and parameterization possible through AS-Interface<br>• Easy and consistent integration in STEP 7 through AS-Interface<br>Your advantage: The correct solution for all simple applications in conveyor systems with spatially distributed drives. | **3RK1** | From 9/21 |

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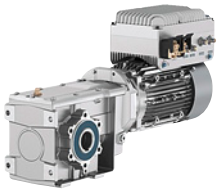
| | | Article No. | Page |
|---|---|---|---|
| **Slaves (continued)** | | | |
| SINAMICS G115D frequency converters, wall-mounted | **SINAMICS G115D distributed inverters**<br>• Robust, with degree of protection IP65/IP66, wide operating temperature range -30 to +55 °C<br>• Wide power range from 0.37 to 7.5 kW (SINAMICS G115D motor-mounted up to 4 kW)<br>• Preconfigured with SIMOGEAR 2KJ8<br>• Local commissioning via DIP switch, USB interface and potentiometer or SINAMICS G120 Smart Access<br>• Integrated safety functions (STO via F-DI or via PROFIsafe)<br>• Integrated applications for conveyor systems, e.g. for roller conveyor, rotary table, transfer carriage<br>• Expanded diagnostics and parameterization through AS-Interface<br>• Flexible connection method for cables, choice of screw connection or push-in, compatible with SINAMICS G110D/G110M/G120D<br>• Optional maintenance switch (SINAMICS G115D wall-mounted)<br>• Optional manual local operation (SINAMICS G115D wall-mounted)<br>Your advantage: The simple solution for consistent implementation of distributed plant concepts with requirements for wall-mounted and motor-mounted variable-speed drives with Safety functionality. | **SINAMICS G115D wall-mounted: 6SL352;**<br>**SINAMICS G115D motor-mounted: 2KJ8** | Catalog D 31.2 |
|  SINAMICS G115D frequency converters, motor-mounted | | | |
| | **Commanding and signaling devices** | | |
| AS-Interface module | SIRIUS ACT pushbuttons and indicator lights for AS-Interface<br>• AS-Interface modules for snap-on mounting on front plate<br>• AS-Interface modules for base mounting for mounting in enclosure<br>• Modular enclosure configuration based on individual specifications<br>• Enclosures with standard fittings<br>• Up to six command points for standard signals or EMERGENCY STOP<br>• Degree of protection IP66/IP67/IP69 (IP69K)<br>• Metal or plastic version<br>• Indicator lights with integrated LED<br>• Any change of equipment possible even after installation<br>Your advantage: Complete operating system with simple AS-Interface integration for your plant. | **3SU14 modules**<br>**3SU18 enclosure** | 13/88<br>From 13/101 |
| AS-i enclosure | | | |
| 8WD42, 8WD44 signaling columns AS-Interface adapter element | SIRIUS 8WD42 and 8WD44 signaling columns<br>• Many optical and acoustic elements can be combined<br>• Up to four signaling elements can be connected using an AS-Interface adapter element<br>• With integrated LEDs or with BA15d base for LEDs/incandescent lamps<br>• For fastening to connection elements (screw or spring-loaded terminals)<br>• 24 V DC, diameters 50 mm (8WD42) and 70 mm (8WD44)<br>• Connection with bayonet mechanism<br>Your advantage: Signaling columns for monitoring production sequences and for visual or acoustic warnings in emergency situations, with easy AS-Interface integration. | **8WD42, 8WD44** | From 13/170 |

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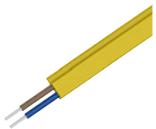
| | | Article No. | Page |
|---|---|---|---|
| **Power supply units and data decoupling modules** | | | |
| | AS-Interface power supply units generate a controlled direct voltage of 30 V DC with high stability and low residual ripple in conjunction with data decoupling. They are an integral component of the AS-Interface network and enable the simultaneous transmission of data and energy on one cable.<br>In conjunction with data decoupling modules, AS-Interface can also be operated with standard power supply units. | | |
| <br>IP20, 3 A | **AS-Interface power supply units**<br>• With wide performance spectrum from 2.6 to 8 A<br>• Degree of protection IP20<br>• Separation of data and energy by means of the integrated data decoupling<br>• UL/CSA approval for global use,<br>2.6 A version with output power restricted to max. 100 W<br>(for Class 2 circuits in accordance with NEC)<br>• Certified for global use<br>• Integrated ground-fault and overload detection save the need for additional components and make applications reliable<br>• Diagnostics memory, remote signaling and Remote RESET allow fast detection of faults in the system<br>• Ultra-wide input range permits 1-phase and 2-phase use (8 A version).<br>Your advantage: Optimum performance for each application. | **3RX9** | 2/67 |
| <br>IP20, 8 A | | | |
| <br>PSN130S<br>30 V DC, 8 A | **30 V power supply units**<br>Standard 30 V power supply units without data decoupling<br>• Power spectrum 3 A, 4 A and 8 A<br>• Overload and short-circuit-proof in every performance class<br>• Diagnostics: With output voltage > 26.5 V DC<br>LED and signaling contact for output voltage 30 V O.K.<br>• Primary-side connection to 120/230 V AC (1-phase) with automatic range selection<br>Your advantage: Economical alternatives in conjunction with data decoupling modules while making full use of the maximum AS-Interface cable length. | **3RX9** | From 2/69 |
| <br>SITOP PSU100M,<br>24 V DC, 20 A | **24 V power supply units**<br>Standard 24 V power supply units (SITOP), without data decoupling<br>• Power spectrum 2.5 to 40 A<br>• Overload and short-circuit-proof in every performance class<br>• Add-on modules for signaling, redundancy, buffering and UPS<br>• 1-, 2- and 3-phase versions<br>Your advantage: Economical alternatives in conjunction with data decoupling modules. | **6EP** | 15/1 or<br>Catalog KT 10.1 |
| <br>S22.5 data decoupling module | **S22.5 data decoupling modules**<br>• Degree of protection IP20, narrow design 22.5 mm<br>• Supply of several AS-i networks with a single power supply unit<br>• Single and double data decoupling<br>• Operation with 24 V DC or 30 V DC<br>Your advantage: Cost-effective installation of AS-i networks in conjunction with standard power supply units. | **3RK1** | From 2/71 |
| <br>DCM 1271 data decoupling module | **DCM 1271 data decoupling module for SIMATIC S7-1200**<br>• Simple data decoupling in IP20 design<br>• Supply of several AS-i networks with a single power supply unit<br>• Operation with 24 V DC or 30 V DC<br>Your advantage: Cost-effective installation of AS-i networks in conjunction with standard power supply units in the design of a SIMATIC S7-1200 module. | **3RK7** | From 2/73 |
| **Transmission media** | | | |
| | AS-Interface shaped cable for connection of network stations | | |
|  <br>Shaped cable | **AS-Interface shaped cable**<br>• No polarity reversal thanks to trapezoidal shape<br>• Cables made of optimized material for different operating conditions<br>• Special version according to UL CLASS 2 available<br>Your advantage: Fast replacement and connection to AS-Interface by piercing method. | **3RX9** | 2/76 |

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| | | Article No. | Page |
|---|---|---|---|
| **System components and accessories** | | | |
| | Accessories comprise tools for mounting, installation and operating as well as individual components. | | |
| Repeater<br> Extension Plug Compact | **Repeaters and extension plugs**<br>• Repeaters for extending the AS-Interface cable by 100 m per repeater<br>• Extension plug for extending the AS-Interface segment to max. 200 m<br>• Parallel connection of several repeaters possible (star configuration option)<br>• Maximum size increases (when combined) to more than 600 m<br>• Easy mounting<br>• IP67 module enclosure<br>Your advantage: Lower infrastructure costs, more possibilities of use and greater freedom for plant planning. | **6GK1 repeater**<br>**3RK1 extension plug** | 2/77<br>2/79 |
| Addressing unit for AS-Interface V 3.0 | **Addressing units**<br>• Reading out and adjusting the slave address 0 to 31 or 1A to 31A, 1B to 31B, with automatic addressing aid and prevention of double addresses<br>• Reading out the slave profile (IO, ID, ID2) and reading out and setting the ID1 code<br>• Input/output test when commissioning the slaves, on all digital and analog slaves according to AS-Interface specification V3.0, including safe input slaves and complex CTT2 slaves<br>• Display of the operational current in case of direct connection of an AS-i slave (measuring range from 0 to 150 mA)<br>• Storage of complete network configurations (profiles of all slaves) to simplify the addressing<br>Your advantage: Easiest way to address and test the slaves. | **3RK1** | From 2/80 |
| Analyzer | **AS-Interface analyzer**<br>• Diagnostics units for completely checking the quality and function of an AS-Interface installation<br>• Transmission of collected data through an RS 232 interface to a PC, evaluation by software<br>• Easy and user-friendly operation<br>• Automatically generated test logs<br>• Advanced trigger functions enable exact analysis<br>• Process data can be monitored online<br>• In addition to digital I/O data it is possible to view analog values and safety slaves in data mode.<br>Your advantage: Preventative testing of an AS-Interface network is possible, recorded logs facilitate remote diagnostics. | **3RK1** | From 2/82 |
| M12 sealing cap<br> Cable end terminator | **Miscellaneous accessories**<br>Individual components such as sealing caps, cable adapters, distributors, M12 plugs and cables, cable end terminator, etc. | **3RK1, 3RX9, 6ES7** | From 2/86 |

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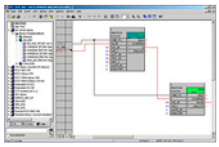
| | | Article No. | Page |
|---|---|---|---|
| **Diagnostics** | | | |
| Diagnostics for AS-Interface via HMI panels | The following diagnostics blocks with visualization via HMI or web browser for AS-Interface can be downloaded free of charge in the Industry Online Support Portal:<br>Diagnostics blocks<br>• For CM AS-i Master ST and F-CM AS-i Safety ST in ET 200SP, see https://support.industry.siemens.com/cs/ww/en/view/109479103<br>• For other Siemens AS-i master and links, see https://support.industry.siemens.com/cs/ww/en/view/50897766<br>Your advantage: Detailed diagnostics display for fast fault analysis and short downtimes – for easy integration into STEP 7 projects. | -- | -- |
| **Software** | | | |
|  AS-Interface block library for PCS 7 | **AS-Interface block library for SIMATIC PCS 7**<br>• Engineering and runtime software<br>• Easy connection of AS-Interface to PCS 7<br>• Engineering work reduced to positioning and connecting the blocks in the CFC<br>• No additional configuring steps required for connection to the PCS 7 Maintenance Station, diagnostics for the AS-i system optimally guaranteed<br>Your advantage: Easy connection of AS-Interface to PCS 7, little engineering and configuration. | **3ZS1635** | From 14/19 |

### *Connection methods*

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals, spring-loaded terminals (push-in) |
| | COMBICON connectors (plug-in screw terminals) |
| | The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds. |

### *Ordering notes for multi-unit packaging*

SlimLine Compact modules SC17,5, SC17.5F and SC22.5 can be ordered in practical and environmentally friendly multi-unit packaging on request.

Multi-unit packaging with order code X90

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code **"X90"** must be specified.

Ordering examples:

- Safe SlimLine Compact module SC17.5F
  3RK1205-0BE00-2AA2-Z X90;
  Order quantity 16 items → Packed number of items 16
- Analog SlimLine Compact module SC22.5
  3RK1207-0CE00-2AA2-Z X90;
  Order quantity 12 items → Packed number of items 12

For more information, see page 16/7.

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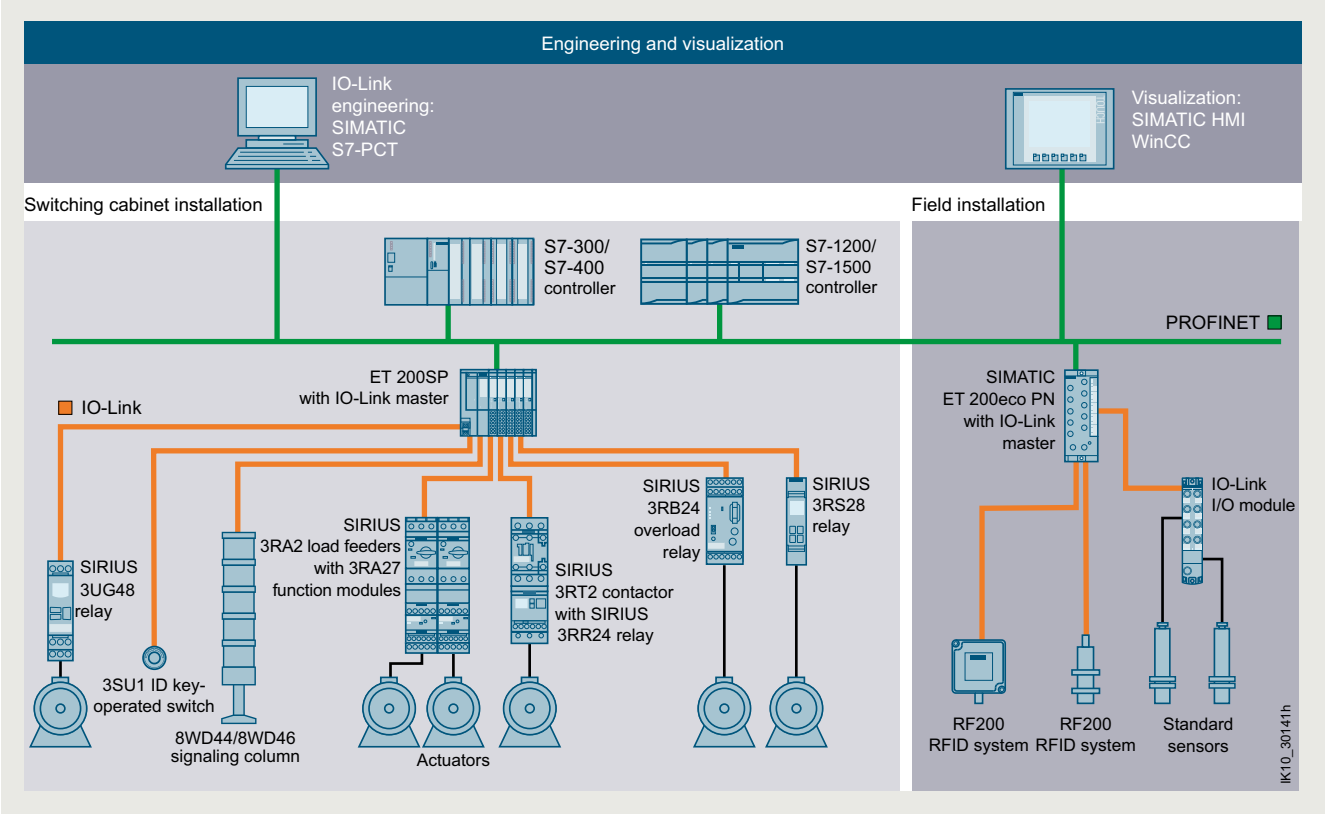
## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/io-link<br>TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=IoLink<br>For important topics at a glance, see https://support.industry.siemens.com/cs/ww/en/view/109737170 | For brochure, see https://assets.new.siemens.com/siemens/assets/api/uuid:ad500ab0-de89-4933-8d76-78728f45720d/dffa-b10447-01broschuereiolinkde-144.pdf |




Engineering and visualization

### *IO-Link – more than just another interface*

IO-Link is an open communication standard for sensors and actuators – defined by the IO-Link Consortium.

IO-Link is a smart concept for the uniform connection of actuators and sensors to the control level by means of a low-cost point-to-point connection.

As an open interface, IO-Link can be integrated into all standard fieldbus and automation systems.

The IO-Link communication standard below fieldbus level enables central error diagnostics and localization down to actuator/sensor level, and facilitates both startup and maintenance by allowing parameter data to be dynamically changed directly from the application.

The increasing intelligence of field devices and their integration into automation as a whole now allows data to be accessed right down to the lowest field level. The result: greater plant availability and less engineering work.

Transparency in the process through IO-Link

High system availability and data transparency are market requirements that must also be met by the connecting of innovative control technology to a control system. A systematic diagnostics concept and efficient handling of parameter data are required for this purpose in automation.

With the aid of the IO-Link communication standard, a communication link is established between switchgear and controller, and this allows data to be exchanged efficiently. Based on a standard cable, it is therefore possible to integrate parameter, process and diagnostics data and measured values into the plant automation with ease. For example, the available diagnostics data allow potential errors to be detected quickly, thus avoiding lengthy plant downtimes.

As a consequence of their basic function, such as overload protection (SIRIUS 3RB24 electronic overload relays for IO-Link), many switchgear units have measured values. The availability of these via IO-Link now allows conclusions to be drawn at an early stage concerning wear and tear in the application.

At the same time the option of parameterizing via IO-Link supports the device not just when parameters concerning operating time are changed, but also when the device is replaced. In the case of a spare part, for example, the parameters can be quickly transmitted to a new device via the communication system.

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## Masters

| | Article No. | Page |
|---|---|---|
| The IO-Link master modules form the heart of the IO-Link system. | | Catalog ST 70 |

CM 8xIO-Link
for SIMATIC S7-1500

**IO-Link master module for SIMATIC S7-1500**

CM 8xIO-Link — **6ES7** — 2/97

- Communications module for connecting up to 8 IO-Link devices (three-wire connections) or 8 standard sensors according to IO-Link specification V1.1
- Can be used directly downstream of an S7-1500 CPU or distributed in ET 200MP via PROFINET or PROFIBUS
- Simple replacement of sensors/actuators without time-consuming parameterization
- Data transmission rates COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd)

Your advantage: Easy connection of IO-Link connections to the SIMATIC S7-1500.

SM 1278 4xIO-Link
for SIMATIC S7-1200

**IO-Link master module for SIMATIC S7-1200**

SM 1278 4xIO-Link master — **6ES7** — 2/98

- IO-Link master as serial communications module with four ports (channels) according to IO-Link specification V1.1
- Easy device exchange with automatic data recovery without engineering for IO-Link device
- Up to four IO-Link devices (three-wire connections) can be connected to each IO-Link master module
- Data transmission rates COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd), automatic adjustment to the data transmission rate supported by the device

Your advantage: Easy connection of IO-Link connections to the SIMATIC S7-1200.

CM 4xIO-Link
for ET 200SP

**IO-Link master modules for ET 200SP**

CM 4xIO-Link V1.1 Standard — **6ES7** — 2/99

- IO-Link master as serial communications module with four ports (channels) according to IO-Link specification V1.1
- Module replacement with automatic data recovery without engineering for IO-Link master and device
- Up to four IO-Link devices (three-wire connections) can be connected to each IO-Link master module.
- Data transmission rates COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd), automatic adjustment to the data transmission rate supported by the device

Your advantage: Easy connection of IO-Link connections to distributed I/Os.

IO-Link master module
for ET 200pro

**IO-Link master module for ET 200pro**

4 IO-LINK HF — **6ES7** — 2/100

- IO-Link master as serial communications module with four ports (channels) according to IO-Link specification V1.1
- Easy device exchange with automatic data recovery without engineering for IO-Link device
- Up to four IO-Link devices can be connected to each IO-Link master module
- Support of IO-Link Port Class B
- Data transmission rates COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd), automatic adjustment to the data transmission rate supported by the device

Your advantage: Easy connection of sensors and actuators to the I/Os directly in the machine's field area.

6ES7148-6J.00-0.B0

**IO-Link master module for ET 200eco PN**

IO-Link master — **6ES7** — 2/101

- 4 IO-L + 8 DI + 4 DO 24 V DC/1.3 A
  - Up to four IO-Link devices (IO-Link Port Class A) can be connected
  - Up to eight standard sensors and up to four standard actuators can be additionally connected
  - Enclosure width 60 mm
- 4 IO-L
  - Up to four IO-Link devices (IO-Link Port Class B) can be connected
  - Enclosure width 30 mm
- 8 IO-L + 4 DI 24 V DC
  - Up to eight IO-Link devices (4 x Port Class A + 4 x Port Class B) can be connected
  - Additionally four digital inputs
  - Enclosure width 45 mm

Your advantage: Easy connection of sensors and actuators to the I/Os directly in the machine's field area.

CM IO-Link
for ET 200AL

**IO-Link master module for ET 200AL**

CM IO-Link — **6ES7** — 2/102

- IO-Link master as serial communications module with four ports (channels) according to IO-Link specification V1.1
- Easy device exchange with automatic data recovery without engineering for IO-Link device
- Up to four IO-Link devices can be connected to each IO-Link master module
- Support of IO-Link Port Class B
- Data transmission rates COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd), automatic adjustment to the data transmission rate supported by the device

Your advantage: Easy connection of sensors and actuators to the I/Os directly in the machine's field area.

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| | | Article No. | Page |
|---|---|---|---|
| **IO-Link digital modules** | | | |
| IO-Link I/O modules for ET 200AL | **IO-Link I/O modules**<br>• IO-Link, digital input modules<br>- DI 8 x 24 V DC, 8 x M8<br>- DI 16 x 24 V DC, 8 x M12<br>• IO-Link, digital output modules<br>- DQ 8 x 24 V DC/2 A, 8 x M12<br>• IO-Link, digital input/output modules<br>- DIQ 4+DQ 4 x 24 V DC/0.5 A, 8 x M8<br>- DIQ 16 x 24 V DC/0.5 A, 8 x M12 | **6ES7** | From 2/103 |
| **Industrial controls** | | | |
| | Starters and contactor assemblies for direct-on-line, reversing and star-delta (wye-delta) starting can be connected to IO-Link through function modules without any additional, complicated wiring. | | |
| SIRIUS contactor 3RT201.-1B...-0CC0 | **Contactors and contactor assemblies**<br>SIRIUS 3RT contactors, 3-pole up to 250 kW<br>SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW<br>SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW<br>• Notable reduction of wiring in the control circuit<br>• Integrated mechanical interlocking<br>• Prevention of wiring errors in the main circuit | **3RT20**<br>**3RA23**<br>**3RA24** | From 3/18<br>From 3/142<br>From 3/158 |
| SIRIUS 3RA2711 function module for IO-Link | SIRIUS 3RA27 function modules<br>• Connection of 3RT20 power contactors with communication capability, 3RA23 reversing contactor assemblies, and 3RA24 contactor assemblies for star-delta (wye-delta) starting to IO-Link<br>• Reduction of control current wiring through plug-in technology, feeder groups and integrated monitoring of circuit breaker/motor starter protector and contactor<br>• Reduced space requirement in the control cabinet through fewer digital inputs and outputs in the control system<br>• Simple user program through operation of feeders instead of individual contactors<br>• Enhanced operational reliability and quick wiring thanks to spring-loaded terminals<br>• Can be flexibly combined with many automation solutions using the open, standardized IO-Link wiring system<br>• Small number of variants through use of identical modules for size S00 to S3 contactors<br>Your advantage: Shortening of mounting and startup times | **3RA2711** | From 3/101 |
| SIRIUS 3RB24 overload relay | **Overload relays**<br>SIRIUS 3RB24 electronic overload relays for IO-Link for high-feature applications<br>• Diagnostics and current value transmission via IO-Link<br>• Current measuring modules (3RB29) for current values from 0.3 to 630 A<br>• In connection with contactors: Controlling direct-on-line, reversing and star-delta (wye-delta) starters via IO-Link<br>• Full motor protection through PTC connection<br>Your advantage: Communication-capable overload relay enables remote diagnostics and preventive maintenance. | **3RB24** | From 7/127 |
| SIRIUS 3RA64 compact starter | **Motor starters for use in the control cabinet**<br>SIRIUS 3RA64, 3RA65 compact starters for IO-Link<br>• Integrated functionality of a circuit breaker, contactor and electronic overload relay and various functions of optional mountable accessories<br>• Can be used for direct starting of standard three-phase motors up to 32 A (approx. 15 kW/400 V)<br>• Compact design offers enormous savings in space and wiring in the control cabinet<br>• Low variance of devices thanks to wide setting ranges for the rated current and wide voltage ranges<br>Your advantage: The diagnostics data of the process collected by the 3RA6 compact starter, e.g. short circuit, end of service life, limit position, etc., are not only indicated on the compact starter itself but also transmitted to the higher-level control system through IO-Link. | **3RA6**<br>**3RA64, 3RA65** | From 8/57<br>From 8/67 |

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## IO-Link



| | | Article No. | Page |
|---|---|---|---|
| **Industrial controls (continued)** | | | |
| | **Monitoring relays** | | |
| SIRIUS 3RR24 monitoring relay | SIRIUS 3RR24 monitoring relays for mounting on 3RT2 contactors for IO-Link<br>• Monitoring relays for mounting on 3RT2 contactors<br>• Parameterization and diagnostics via the display on the device or via IO-Link<br>• Adjustable warning and switch-off limit values and on/tripping delay times<br>• All current measured values available in the control system<br>Your advantage: Communication-capable monitoring relay enables remote diagnostics and preventive maintenance. | **3RR24** | From 10/55 |
| SIRIUS 3UG48 monitoring relay | SIRIUS 3UG48 monitoring relays for stand-alone installation for IO-Link<br>• Monitoring of<br>- Network (3UG481)<br>- Voltage (3UG483)<br>- Current (3UG4822)<br>- Power factor and active current (3UG484)<br>- Fault current (3UG4825)<br>- Speed (3UG485)<br>• Parameterization and diagnostics via the display on the device or via IO-Link<br>• Adjustable warning and switch-off limit values and on/tripping delay times<br>• All current measured values available in the control system<br>Your advantage: Communication-capable monitoring relay enables remote diagnostics and preventive maintenance. | **3UG48** | From 10/96 |
| SIRIUS 3RS28 temperature monitoring relay | SIRIUS 3RS28 temperature monitoring relay for IO-Link<br>• Measuring the temperature of solids, liquids and gases<br>• Use of resistance sensors or thermocouples<br>• Parameterization and diagnostics via the display on the device or via IO-Link<br>• Adjustable warning and switch-off limit values and on/tripping delay times<br>• All current measured values available in the control system<br>Your advantage: Independent monitoring easily linked to the control system. | **3RS28** | From 10/119 |
| | **SIRIUS ACT pushbuttons and indicator lights** | | |
| SIRIUS ACT 3SU1 ID key-operated switch | SIRIUS ACT 3SU1 ID key-operated switches for IO-Link<br>• Access system and selection system for four authorization levels<br>• Authentication of groups and persons<br>• Five ID keys with different coding<br>• Option for individual coding via IO-Link<br>• For installation in enclosures or fastening on front plate<br>• Solid-state module for ID key-operated switches must be ordered separately.<br>Your advantage: Only authorized personnel can work on plants and machines. | **3SU1** | 13/12 |
| SIRIUS ACT 3SU1 solid-state module | SIRIUS ACT 3SU1 solid-state modules for IO-Link<br>• Eight digital inputs and outputs possible<br>• DI and DQ freely selectable (programmable)<br>• Input and output functions parameterizable<br>• Connection method (push-in)<br>• For installation in enclosures or fastening on front plate<br>Your advantage: No wiring required if ordered in a 3SU1 enclosure via configurator. | **3SU1400** | 13/89 |

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| | | Article No. | Page |
|---|---|---|---|
| **Industrial controls (continued)** | | | |
| 8WD46 signaling column | **SIRIUS 8WD4 signaling columns**<br>Electronically configurable 8WD46 signaling columns, 70 mm diameter<br>Signaling columns for IO-Link, with or without audible signal<br>• Configuration of signaling column via IO-Link interface (IODD)<br>• Fast connection of signaling columns to application using 4-pole M12 plugs<br>• Via the IO-Link interface, the pattern, color and brightness of the individual segments (9 to 15 segments) can be set.<br>• The audible signal can also be set (volume, type of sound up to 105 dB).<br>Your advantage: Signaling columns for monitoring production sequences and for visual or acoustic warnings in emergency situations, with easy IO-Link connection. | **8WD46** | From 13/163 |
| 8WD44 signaling column<br> 8WD44 IO-Link adapter element | 8WD44 signaling columns, 70 mm diameter<br>• Up to five signaling elements can be connected using an IO-Link adapter element<br>• 24 V DC<br>• Connection with bayonet mechanism<br>• For fastening on feet<br>• Connection elements with screw or spring-loaded terminals or connection element with 5-pole M12 plug<br>Your advantage: Signaling columns for monitoring production sequences and for visual or acoustic warnings in emergency situations, with easy IO-Link connection. | **8WD44** | From 13/170 |
| **IO-Link RFID systems** | | | |
| RFID system for IO-Link | **SIMATIC RF200 RFID system in the HF range**<br>Products SIMATIC RF210R, SIMATIC RF220R, SIMATIC RF240R, SIMATIC RF250R, SIMATIC RF260R<br>• Simple identification tasks such as reading an ID number (UID)<br>• Reading of user data<br>• Writing of user data<br>• No RFID-specific programming, ideal for those new to RFID<br>• Simple connection via master modules for IO-Link, such as SIMATIC S7-1200, ET 200SP, ET 200pro, ET 200eco PN and ET 200AL<br>• Use with the tried and tested ISO 15693 transponders (MDS Dxxx) | **6GT2** | Catalog ID 10 |
| **IO-Link Device Description (IODD)** | | | |
| IODD files for IO-Link | **IODD files**<br>These files provide the device description for IO-Link devices.<br>• Comprehensive IODD catalog of SIEMENS IO-Link devices<br>• Freely available for download from Industry Online Support, see https://support.industry.siemens.com/cs/ww/en/ps/15851 | -- | 2/95 |
| IODDfinder for IO-Link | **IODDfinder**<br>The entire world of IO-Link under one roof<br>The IODDfinder is a service provided by the IO-Link community. It is a central cross-vendor database for descriptive files (IODDs). In addition, the platform provides an overview of the available IO-Link devices.<br>For more information, see https://ioddfinder.io-link.com/#/. | -- | 2/95 |

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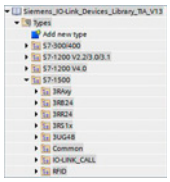
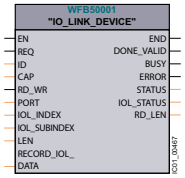
## IO-Link software

| | Article No. | Page |
|---|---|---|
| S7-PCT<br>**S7-PCT (Port Configuration Tool)**<br>Engineering software for configuring the IO-Link master modules for SIMATIC S7-1200, ET 200MP, ET 200SP, ET 200pro, ET 200eco PN and ET 200AL<br>• Available as a stand-alone version or integrated into STEP 7 (V5.5 SP1 and higher) and TIA (V12 and higher)<br>• Engineering of the IO-Link devices connected to the master<br>• Monitoring of the process image of the IO-Link devices<br>• Open interface for importing further IODDs<br>• Freely available for download from Industry Online Support, see https://support.industry.siemens.com/cs/ww/en/view/32469496 | -- | 2/95 |
|  Library for IO-Link (LIOLink)<br>**Library for IO-Link (LIOLink)**<br>This library provides blocks and PLC data types to enable easy communication between the SIMATIC controller and the IO-Link master or IO-Link device.<br>• Freely available for download from Industry Online Support, see https://support.industry.siemens.com/cs/ww/en/view/82981502 | -- | 2/95 |
|  Function block IO-Link device<br>**Application of the device-specific blocks for IO-Link**<br>This application illustrates in a specific example how easy it is to connect Siemens IO-Link devices to a SIMATIC S7 CPU using the library for IO-Link (LIOLink).<br>• Freely available for download from Industry Online Support, see https://support.industry.siemens.com/cs/ww/en/ps/90529409 | -- | 2/95 |

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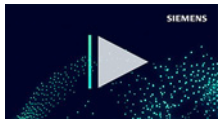
## Overview

AS-Interface is an open, international standard according to IEC 62026-2 for process and field communication. Leading manufacturers of actuators and sensors all over the world support the AS-Interface. Interested companies are provided with the electrical and mechanical specifications by the AS-Interface Association.

AS-Interface is a single master system. For automation systems from Siemens, there are communications processors (CPs), communications modules (CMs) and routers (links) that control the process or field communication as masters, and actuators and sensors that are activated as AS-Interface slaves.

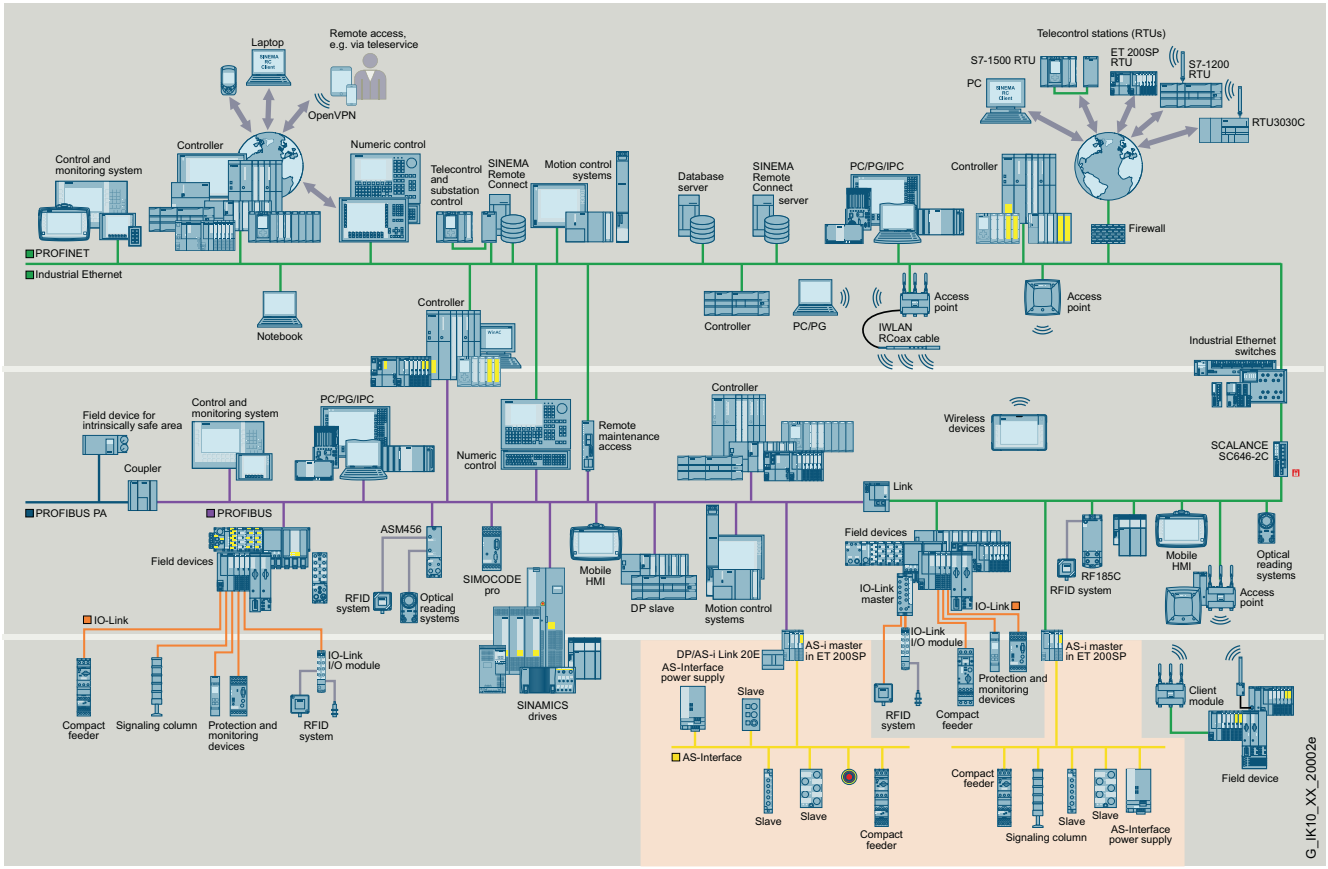



Video: AS-Interface – Powerful integration in SIMATIC ET 200SP

**More information**

Homepage, see www.siemens.com/as-interface
Industry Mall, see www.siemens.com/product?as-interface

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=AsInterface




AS-Interface in the SIMATIC NET communications landscape

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## Benefits

An important characteristic of the AS-Interface technology is the use of a shared twisted pair for data transmission and distribution of auxiliary power to the sensors and actuators. An AS-i power supply unit or alternatively a standard power supply unit that meets the requirements of the AS-Interface transmission method and has an external AS-i data decoupling module is used for the distribution of auxiliary power. The AS-Interface cable used for the wiring is mechanically coded and hence protected against polarity reversal and can be easily contacted by the insulation piercing method.

Elaborately wired control cables in the control cabinet and marshaling racks can be replaced by AS-Interface.

The AS-Interface cable can be connected to any points thanks to a specially developed cable and connection by the insulation piercing method.

With this concept you become extremely flexible and achieve high savings.

## Application

***I/O data exchange***

The AS-i master automatically transfers the inputs and outputs between the controller and the digital and analog AS-Interface slaves. Slave diagnostics information is forwarded to the control system when required.

The latest AS-Interface masters according to the AS-Interface specification V3.0 support integrated analog value processing. This means that data exchange with analog AS-Interface slaves is just as easy as with digital slaves.

***Command interface***

In addition to I/O data exchange with binary and analog AS-Interface slaves, the AS-Interface masters can provide a number of other functions through the command interface.

Hence it is possible, for example, for slave addresses to be issued, parameter values transferred or configuration information read out from user programs.

For more information, see https://support.industry.siemens.com/cs/ww/en/view/51678777.

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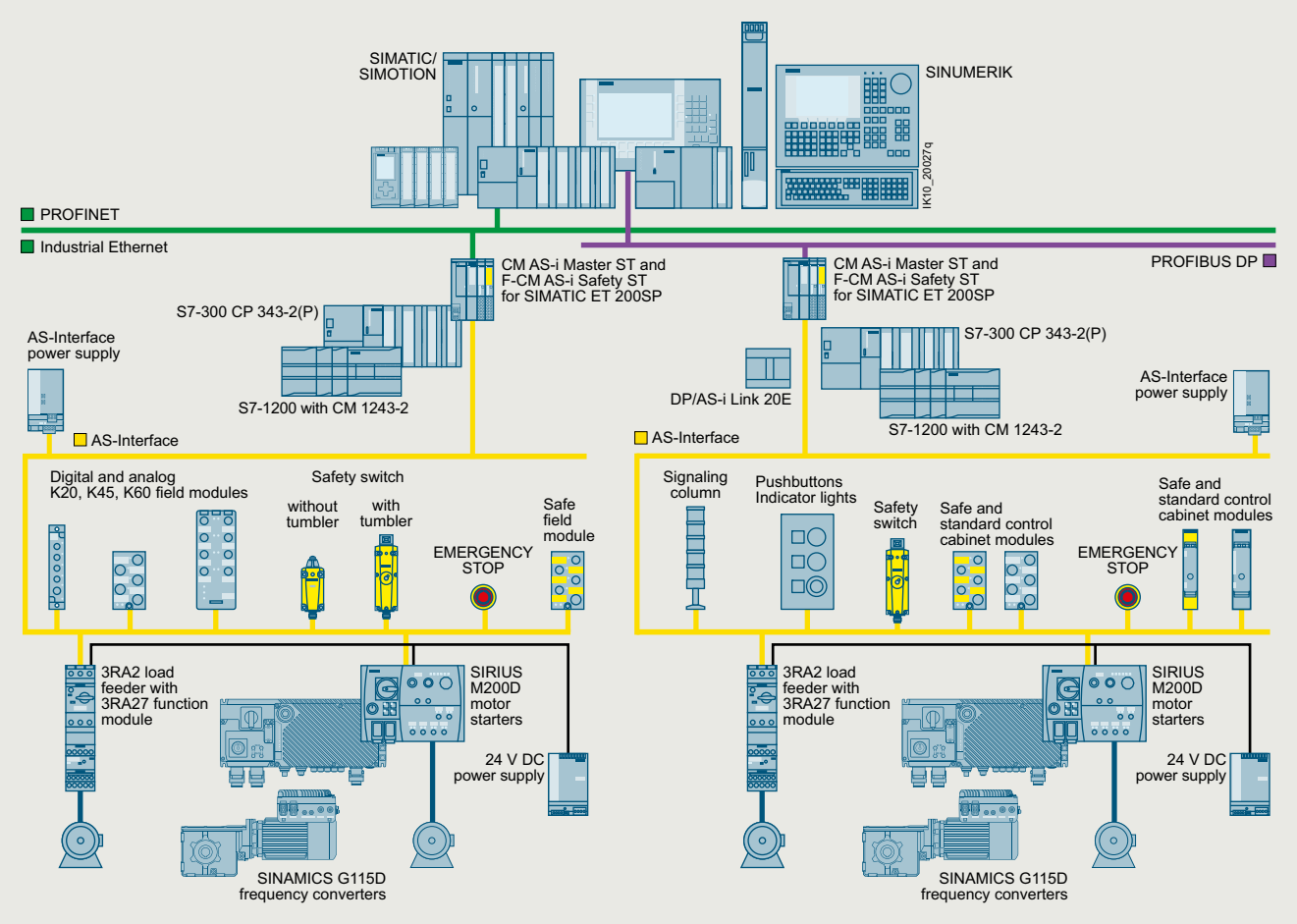
## Overview

To implement communication, the following components of a system installation are available:

- AS-i master modules for central control units such as SIMATIC S7, ET 200M/ET 200SP distributed I/Os, or network transitions from PROFIBUS to AS-Interface
- AS-i power supply unit or alternatively a standard power supply unit in combination with an AS-i data decoupling module for the power supply to the slaves and sensors
- AS-Interface shaped cables
- Network components such as repeaters and extension plugs (cannot be used for AS-i Power24V)
- I/O modules (AS-i slaves) for connection of standard sensors/actuators
- Actuators and sensors with integrated AS-i slave
- Safe I/O modules (ASIsafe slaves) for transmitting safety-related data through AS-Interface
- Addressing device for setting slave addresses during commissioning




Example of a configuration with the system components

### *Features*

| | |
|---|---|
| Standard | IEC 62026-2 |
| Topology | Line, star or tree structure (same as electrical wiring) |
| Transmission medium | Unshielded twisted pair (2 x 1.5 $mm^2$) for data and auxiliary power |
| Connection methods | Contacting of the AS-Interface cable by insulation piercing method |
| Maximum cable length | • 100 m without repeater, without an extension plug<br>• 200 m with an extension plug<br>• 300 m with two repeaters in series connection<br>• 600 m with three extension plugs and two repeaters connected in parallel<br>Longer cable lengths also possible through parallel connection of more repeaters. |

| | |
|---|---|
| Maximum cycle time | • 5 ms in maximum configuration with 31 standard addresses<br>• 10 ms in maximum configuration with 62 A/B addresses<br>• Profile-specific for slaves with extended data, e.g. analog slaves |
| Number of stations per AS-Interface line | • Up to 62 slaves (A/B addressing)<br>• Integrated analog value transmission |
| Number of binary sensors and actuators | Max. 496 DI/496 DQ |
| Access control | • Cyclic polling master/slave procedure<br>• Cyclic data acceptance from host (PLC, PC) |
| Error safeguard | Identification and repetition of faulty message frames |

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## Overview

### *Scope of AS-Interface specification V3.0*

| Maximum number of slaves | | | Number of digital inputs | Number of digital outputs |
|---|---|---|---|---|
| Digital | Analog | ASIsafe | DI | DQ |
| 62 | 62 | 31 | 62 X 8 = 496 | 62 X 8 = 496 |

### *Basic data*

- AS-Interface specification 3.0 describes a fieldbus system with an AS-i master and up to 62 AS-i slaves.
- Every AS-i slave with standard addressing occupies one AS-i address (1...31).
- Slaves with extended addressing divide an AS-i address into an A address (1A...31A) and a B-address (1B...31B). Up to 62 A/B slaves can be connected accordingly to one AS-Interface network.
- Mixed operation of slaves with standard addressing and extended addressing (A/B slaves) is possible without difficulty. The AS-i master identifies automatically which type of slave is connected, so no special adjustments are required of the user.
- One digital AS-i slave typically has up to four digital inputs and four digital outputs.
- Transmission of the digital input/output data requires max. 5 ms cycle time for 31 slaves; for further values, see "Communication cycle".
- Integrated analog value transmission permits access to both analog values and digital values without the need for any special function blocks.

### *Communication cycle*

| Maximum cycle time (digital signals) |
|---|
| • 5 ms with 31 slaves<br>• 10 ms with 62 slaves<br>• Up to 20 ms for slaves with A/B address and 4 DI/4 DQ<br>• Up to 40 ms for slaves with A/B address and 8 DI/8 DQ |

Each address is queried in max. 5 ms cycle time. If two A/B slaves are operated on one basic address (e.g. 12A and 12B), a maximum of 10 ms will be required to update the data of both slaves.

Slaves with A/B addressing transmit max. 4 DI/3 DQ in one cycle.

Slaves with A/B addressing and 4 DQ or 4 DI/4 DQ transmit the output data in two consecutive cycles. The double transmission time of these outputs has no effect in typical applications. The transmission procedure is performed automatically by the AS-i master in accordance with AS-i specification V3.0. These slaves are identified in the selection data with addressing type A/B (spec. V3.0).

Slaves with a single A/B address and 8 DI/8 DQ transmit the input and output data in four consecutive cycles. The transmission time of the inputs/outputs of these slaves increases accordingly. The transmission procedure is performed automatically by the AS-i master in accordance with AS-i specification V3.0.

The slaves offered by Siemens with 8 DI or 8 DI/2 DQ use two AS-i addresses so that the time-consuming procedure is not needed and a fast data update is ensured.

All slave types can be mixed and used on a single AS-Interface network.

For more information, such as the addressing type used by the AS-interface slave (standard or A/B address), see the "Selection and ordering data" for the relevant slave.

| More information |
|---|
| System Manual for AS-Interface, see https://support.industry.siemens.com/cs/ww/en/view/26250840 |

### *AS-Interface product range*

AS-Interface products from Siemens use the current AS-Interface specification V3.0, which is standardized internationally as IEC 62026-2.

The alternating pulse modulation developed more than 20 years ago for AS-Interface has proven to be a reliable transmission method with which the direct voltage supply for the bus modules and the connected sensors is provided on the standard twisted pair.

Multiple development stages were implemented to produce the proven-in-use system components with optimum EMC properties available today. The extensive product range with AS-Interface specification V3.0 undergoes constant innovation and is extremely cost-efficient, both to install and operate.

The bus cable can be retrofitted with repeaters of AS-Interface specification V3.0, and the modules function without any reciprocal interference. Master modules from Siemens enable ideal integration into the SIMATIC environment, in particular for the AS-Interface master of the ET 200SP distributed I/O system.

The underlying industrial requirements for the system concept are still applicable today: Numerous individual digital input and output signals are spatially distributed in the machine. Rather than having to install thick cable harnesses from the control cabinet to the sensors and actuators, smaller, more manageable AS-i modules are simply inserted in situ onto the bus cable in the IP67 enclosure, and the sensors and actuators connected with short M12 cables.

An additional AS-i module is installed in proximity to the next sensor to ensure that the length of the M12 cables is kept as short as possible. As analog signals are likewise transmitted without any problems, the AS-Interface also replaces the long, shielded analog cables.

Depending on requirements, the switching devices can also be connected to AS-i modules with terminal connection or conveniently used with the integrated AS-i connection. Motor controllers with digital and analog inputs and outputs are also offered with the current AS-Interface specification V3.0.

Safety signals are also transmitted simply and flexibly by the AS-Interface. The safety-related sensors for protective doors and EMERGENCY STOP buttons can be installed and retrofitted in any position.

The AS-i Safety functionality from Siemens has been continuously optimized and complies with the proven AS-Interface specification V3.0.

For industrial components which require greater transmission capacities, Siemens provide respective solutions with the suitable communications systems.

The AS-Interface system from Siemens continues to provide an ideal and consistent solution for a multitude of simple sensors and actuators, including safety technology and special applications.

Available masters with the latest AS-Interface specification V3.0

- CM AS-i Master ST, F-CM AS-i Safety ST (ET 200SP)
- CM 1243-2 (S7-1200)
- CP 343-2P/CP 343-2 (S7-300/ET 200M)
- DP/AS-Interface Link 20E

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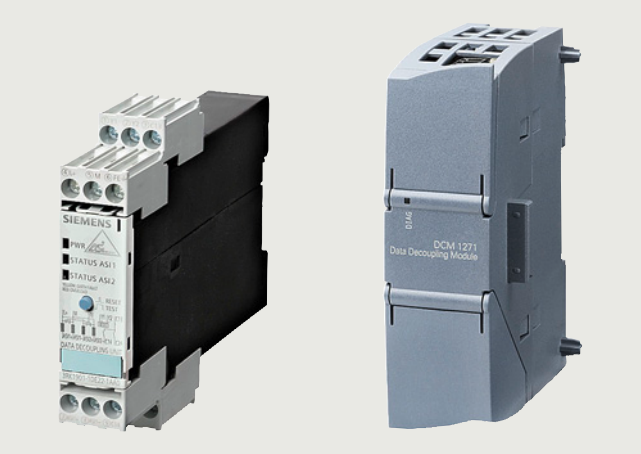
## Overview

**More information**

For a complete overview of AS-i Power24V-capable devices currently available from Siemens, see https://support.industry.siemens.com/cs/ww/en/view/42806066

For details of AS-i Power24V, see System Manual for AS-Interface, https://support.industry.siemens.com/cs/ww/en/view/26250840




AS-Interface data decoupling modules for AS-i Power24V
Left: S22.5 data decoupling module,
Right: DCM 1271 data decoupling module for SIMATIC S7-1200

Parallel wiring frequently dominates, above all, in applications with very few I/Os. AS-Interface can, however, also replace extensive parallel wiring in small applications at a favorable price.

AS-i Power24V enables an already existing standard 24 V DC power supply unit to be used for the AS-i network.

### *Data and power in the standard AS-Interface network*

One of the great advantages of AS-Interface is the ability to convey not only data, but also the power needed for the connected slaves and sensors over the same unshielded twisted pair. This is owed to the service-proven AS-Interface power supply units which provide integrated data decoupling as well as overload and short-circuit protection and integrated ground-fault monitoring.

### *AS-i Power24V*

Instead of the AS-Interface power supply unit (with 30 V output voltage and integrated data decoupling) the AS-i cable is supplied via a data decoupling module from a 24 V standard power supply unit. The communication technology of AS-Interface works at the same high level of quality with an operational voltage of both 30 V DC and 24 V DC.

| | Key data of AS-i Power24V |
|---|---|
| **Number of slaves** | Up to 62 slaves and up to 31 safe slaves |
| **Topology** | Any |
| **Range** | Up to 50 m |
| **Components** | • 24 V power supply unit with low residual ripple and limitation to max. 40 V<br>• AS-i Power24V-capable data decoupling with integrated ground-fault detection<br>• AS-i Power24V-capable masters, slaves and components |

### *Requirements for operation of an AS-i Power24V network*

- When 24 V power supply units are used, the maximum network range of 50 m must be observed to reach slaves and sensors with a sufficient level of voltage (at least 18 V).
- The power supply units must comply with the ES1 (IEC 62368-1) or PELV (Protective Extra Low Voltage)/ SELV (Safety Extra Low Voltage) standards, have a residual ripple of < 250 $mV_{pp}$, and must limit the output voltage to a maximum of 40 V in the event of a fault. We recommend SITOP power supplies, see page 15/1 or Catalog KT 10.1, https://support.industry.siemens.com/cs/ww/en/view/109745655.
- When used in conjunction with standard 24 V power supply units, each AS-Interface network requires AS-i Power24V-capable data decoupling, see page 2/71 onwards.
- For reliable operation of an AS-i network with 24 V voltage, it is important that the masters, slaves and other components are approved for AS-i Power24V. AS-i Power24V-capable AS-i components can also be used without restriction in standard 30 V AS-i networks.
- Use of repeaters or extension plugs in AS-i Power24V networks is not permitted.

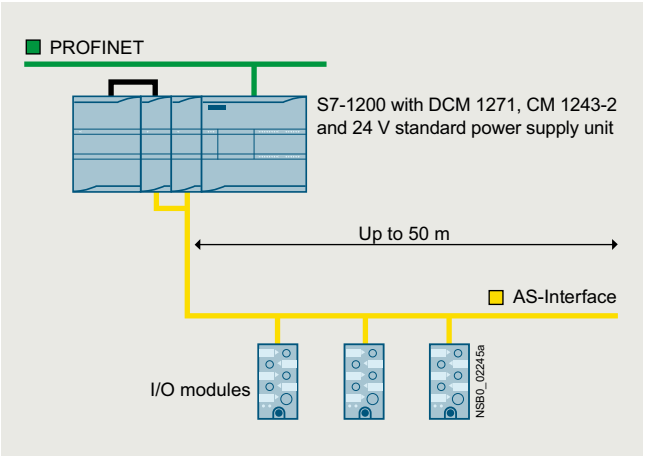
## Benefits

In small control cabinets the AS-i power supply unit can be replaced by an AS-i data decoupling module that is connected to an existing 24 V power supply unit.

- The advantages of the AS-i communications system in terms of commissioning, maintenance and diagnostics can be fully exploited.
- If a double data decoupling module is used, two AS-i networks can be supplied.

## Application

### *Configuration of an AS-i Power24V network*




Configuration of an AS-i Power24V network with an AS-Interface DCM 1271 data decoupling module and S7-1200 (simple network)

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## Introduction

### Overview

**More information**

For more information and typical circuit diagrams on safety engineering, see https://support.industry.siemens.com/cs/ww/en/view/83150405

***ASIsafe – Safety is included***

ASIsafe enables the integration of safety-related components such as EMERGENCY STOP pushbuttons, protective door switches, cable-operated switches or other AS-i safety sensors in an AS-Interface network. These are fully compatible with the familiar AS-Interface components (masters, slaves, power supply units, repeaters, etc.) in accordance with IEC 62026-2 and are operated in conjunction with them on the yellow AS-Interface cable.

***Tested safety***

- Protective door switches
- Cable-operated switches
- Other AS-i safety sensors

The transmission method for safety-related signals is released for applications up to SIL 3 (IEC 62061)/PL e (ISO 13849-1).

***Higher-level control***

As usual, nodes on the AS-Interface bus are controlled in operation by the standard program of the higher-level SIMATIC (F) CPU or by a SINUMERIK control.

***Configuring safety functions***

In order to implement safe functions, the information from the safe and standard nodes must be combined logically and further parameters set.

In conjunction with the modular safety AS-i master, which is formed by combining the CM AS-i Master ST and F-CM AS-i Safety ST modules in an ET 200SP station, all safety functions and combinations are configured via STEP 7 and processed in the controller (F-CPU) by the Failsafe program.

### Benefits

- Simple system structure thanks to standardized AS-Interface technology
- Safety-related and standard data on the same bus
- Existing systems can be expanded quickly and easily
- Optimum integration in TIA (Safety Diagnostics) and Safety Integrated
- Inclusion of the safety signals in the plant diagnostics, also on existing HMI Panels
- Approved up to SIL 3 (IEC 62061)/PL e (ISO 13849-1)
- ASIsafe is certified by TÜV (Germany), NRTL (USA) and INRS (France)

### Application

Integrated safety technology in the AS-Interface system can be used wherever EMERGENCY STOP buttons, protective door interlocks, safety switches, light arrays and two-hand operation are installed.

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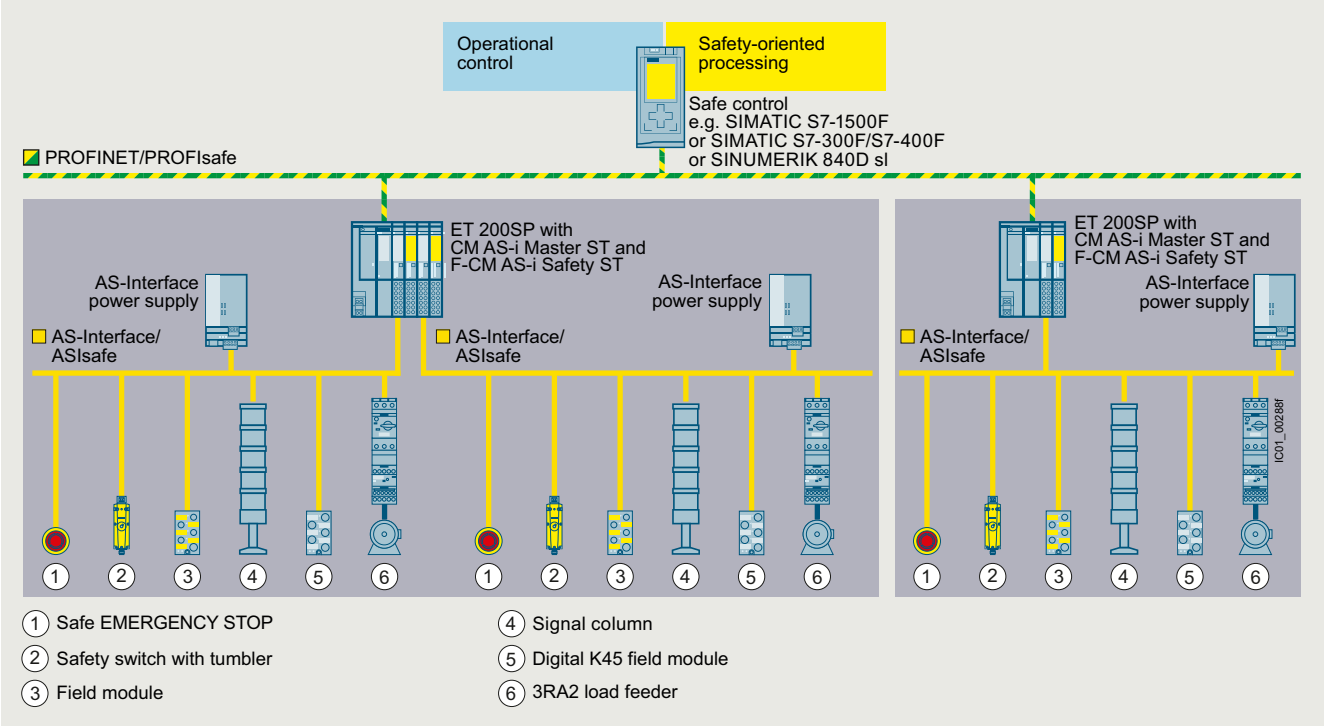
## Overview




AS-Interface configuration with AS-i master modules in the ET 200SP

The AS-i communications modules in the ET 200SP facilitate the use of AS-Interface under fail-safe SIMATIC or SINUMERIK controllers.

The allocation of tasks is as follows:

- Acquisition of safety-related signals via safe input slaves on the AS-Interface bus.
  Further signals can be detected through other F-DI modules of the SIMATIC.
- Evaluation and processing of signals via the fail-safe SIMATIC or SINUMERIK control
- Reacting by means of safety output modules on the AS-Interface bus
  or other SIMATIC F-DQ modules

Simple combination of the CM AS-i Master ST and F-CM AS-i Safety ST modules in one ET 200SP station results in a powerful, safety-related network transition between PROFINET (or PROFIBUS) and AS-Interface, which can be expanded further in a modular fashion with further I/O modules of the ET 200SP.

Using these design methods, it is possible to create configurations for virtually any application. Besides the single AS-i master, double, triple or generally multiple masters can be realized with or without Failsafe functionality.

F-CM AS-i Safety ST for SIMATIC ET 200SP, see page 2/34 onwards.

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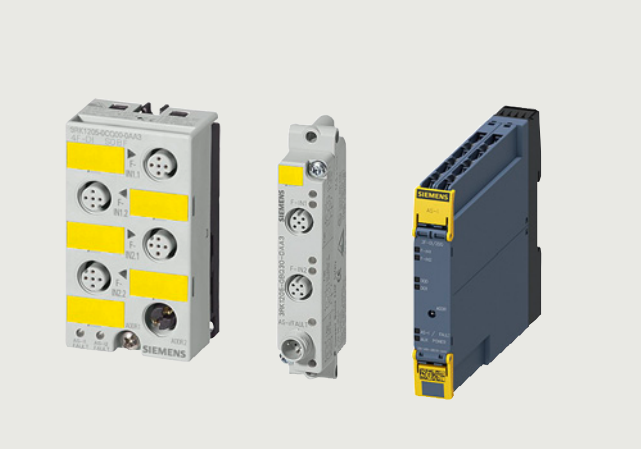
2

## Overview



AS-Interface safety modules: K45F (left), K20F (center) and SC17.5F (right)

Safety modules for AS-Interface (ASIsafe modules) are available for field use in degree of protection IP67 (K20F and K45F compact modules) and for the control cabinet (SC17.5F SlimLine Compact modules) in degree of protection IP20.

A very compact module with an optimum price/performance ratio is thus available for every application.

All modules for the connection of (mechanical) switches and safety sensors with contacts feature cross-circuit monitoring of the connected sensor line.

### *Function*

The safety-related modules with 2 F-DI have two safe inputs. These inputs can be used in a 2 x 1-channel configuration for applications up to SIL 1/PL c or as 1 x 2-channel for applications up to SIL 3/PL e according to IEC 62061 or ISO 13849. According to the AS-Interface specification, the two safe inputs are always evaluated in AND-gated pairs, i.e. the two inputs always influence the safety function as a pair and cannot therefore influence the two different actuators independently. A safety-related module takes up one AS-i address (1 ... 31) with standard addressing and no A/B address.

If the module is used in a 2 x 1-channel configuration, the actuator can be activated as soon as the contacts are closed at both inputs. No discrepancy check is made.

If the module is used in a 1 x 2-channel configuration, the actuator can be activated as soon as the contacts are closed at both inputs and no discrepancy has first been detected at the input pair. The response of the discrepancy check can be checked via the evaluation unit (e.g. F-CM AS-i Safety module).

The safety-related modules with 4 F-DI have four safe inputs, where each pair of 2 F-DI exert an influence jointly as described above (2 x 2 F-DI). The two input pairs work independently of each other. Each input pair can influence on one actuator (i.e. a safety function). The safety-related modules with 4 F-DI take up two AS-i addresses.

Safety-related modules with 2 F-DI/2 DQ contain not only the safety-related inputs but also non-safety-related standard outputs. The standard outputs must not be used for safety-related switching functions.

The safe inputs are designed for connecting (mechanical) switches. Safety sensors with solid-state outputs (OSSD) cannot be used at the safe inputs.

### *AS-Interface safety modules*

The following modules are available for selection:

K20F compact safety modules for use in the field

Being only 20 mm wide, the K20F module is particularly well suited for applications where modules need to be arranged in the most confined space. The K20F modules are connected to the AS-Interface with a round cable with M12 cable box instead of with the AS-Interface flat cable. This enables extremely compact installation. The flexibility of the round cable means that it can also be used on moving machine parts without any problems. The K20 modules are also ideal for such applications as their non-encapsulated design makes them particularly light in weight.

K45F compact safety modules for use in the field

The platform of the K45F modules covers the connection of ("mechanical") switches/safety sensors with contacts:

- K45F 2 F-DI: two safety-related inputs. These can be used in a 2 x 1-channel configuration for applications up to SIL 1/PL c or as 1 x 2-channel for applications up to SIL 3/PL e according to IEC 62061 or ISO 13849.
- K45F 2 F-DI/2 DQ: There are also two standard outputs in addition to the safe inputs. Depending on the selected K45F module, the outputs are powered either from the yellow AS-Interface cable or via the auxiliary voltage $U_{aux}$ from the black 24 V DC cable. Modules with degree of protection IP67 do not have a switch for setting the power supply on the module.
- K45F 4 F-DI: four safety-related inputs. Functionality as for two K45F 2 F-DI modules, but combined with a K45F enclosure. Extremely compact double slave (uses two AS-i addresses)
- K45F 4 F-DI: These can be used in a 2 x 1-channel configuration for applications up to SIL 1/PL c or as 1 x 2-channel for applications up to SIL 3/PL e according to IEC 62061 or ISO 13849. Extremely compact double slave (uses two standard AS-i addresses)

SC17.5F SlimLine Compact safety modules with a width of just 17.5 mm for use in control cabinets and local control boxes

With a width of only 17.5 mm, the safe SC17.5F SlimLine Compact modules are ideal for space-saving use in a control cabinet. The modules have two safety inputs for connecting signals to ASIsafe networks in the control cabinet. In operation up to SIL 1/PL c, the two inputs can be assigned separately (with AND gating of the inputs); if SIL 3/PL e is required, the inputs must be used in a 2-channel configuration.

There are also two module variants which have two standard outputs in addition to the two safety inputs. The outputs are supplied either from the yellow AS-Interface cable alone, or via auxiliary voltage from the black 24 V DC cable. The supply voltage is set via a slide switch on the rear of the device.

When using several modules, they can be connected simply via the optional device connector. This simplifies the wiring. The yellow AS-i bus cable and the 24 V DC auxiliary voltage $U_{aux}$ then only need to be connected to one module.

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## Selection and ordering data

**For multi-unit packaging for SC17.5F, see page 16/7.**

| Version | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1205-0BQ30-0AA3 | **K20F compact safety modules**<br>Slave addressing type: Standard address | | | | | |
| I/O type | $U_{aux}$ 24 V | | | | | |
| 2 F-DI | -- | **3RK1205-0BQ30-0AA3** | | 1 | 1 unit | 42C |
| 3RK1205-0BQ00-0AA3 | **K45F compact safety modules**<br>Slave addressing type: Standard address<br>(modules supplied without mounting plate) | | | | | |
| I/O type | $U_{aux}$ 24 V | | | | | |
| 2 F-DI | -- | **3RK1205-0BQ00-0AA3** | | 1 | 1 unit | 42C |
| 4 F-DI[1)] | -- | **3RK1205-0CQ00-0AA3** | | 1 | 1 unit | 42C |
| 2 F-DI/2 DQ | -- | **3RK1405-0BQ20-0AA3** | | 1 | 1 unit | 42C |
| 2 F-DI/2 DQ | ✓ | **3RK1405-1BQ20-0AA3** | | 1 | 1 unit | 42C |
| 3RK1405-2BE00-2AA2 | **SC17.5F SlimLine Compact safety modules**<br>Slave addressing type: Standard address | | | | | |
| I/O type | Outputs | | | | | |
| | | **Screw terminals** | | | | |
| 2 F-DI | -- | **3RK1205-0BE00-2AA2** | | 1 | 1 unit | 42C |
| | | **Spring-loaded terminals (push-in)** | | | | |
| 2 F-DI | -- | **3RK1205-0BG00-2AA2** | | 1 | 1 unit | 42C |
| | | **Screw terminals** | | | | |
| 2 F-DI/2 DQ | $U_{ASI}/U_{aux}$ supply selectable | **3RK1405-2BE00-2AA2** | | 1 | 1 unit | 42C |
| | | **Spring-loaded terminals (push-in)** | | | | |
| 2 F-DI/2 DQ | $U_{ASI}/U_{aux}$ supply selectable | **3RK1405-2BG00-2AA2** | | 1 | 1 unit | 42C |

✓ Available or possible
-- Not available or not possible
1) Module occupies two AS-Interface addresses

Standard I/O modules for AS-Interface
- For degree of protection IP67, see page 2/44 onwards
- For degree of protection IP20, see page 2/59 onwards

The existing SlimLine series of ASIsafe modules for use in the control cabinet and local control boxes is being replaced by the new SlimLine Compact series. We recommend that these new devices are used in future.

For the conversion table, see page 2/61.

Note:

The previous SlimLine devices are still available for use as replacements in existing systems. As a result of the innovation, the new SlimLine Compact devices are not fully compatible in terms of either mechanical dimensions or electrical properties.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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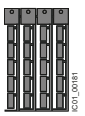
## Accessories

**More information**

For the Equipment Manual for SlimLine Compact modules, see https://support.industry.siemens.com/cs/ww/en/view/109481489

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Accessories for compact safety modules** | | | | | |
| 3RK1901-2EA00 | | | | | |
| **K45 mounting plates** | | | | | |
| For mounting K45F | | | | | |
| • For wall mounting | **3RK1901-2EA00** | | 1 | 1 unit | 42C |
| • For DIN-rail mounting | **3RK1901-2DA00** | | 1 | 1 unit | 42C |
| 3RK1901-1AA00 | | | | | |
| **Input bridges for K45F** | | | | | |
| • Black version | **3RK1901-1AA00** | | 1 | 1 unit | 42C |
| • Red version | **3RK1901-1AA01** | | 1 | 1 unit | 42C |
| 3RK1901-1KA00 3RK1901-1KA01 | | | | | |
| **AS-Interface sealing caps M12** | **3RK1901-1KA00** | | 100 | 10 units | 42C |
| For free M12 sockets | | | | | |
| • Tamper proof | **3RK1901-1KA01** | | 100 | 10 units | 42C |
| **Accessories for SlimLine Compact safety modules** | | | | | |
| 3RK1901-1YA00 3RK1901-1YA01 | | | | | |
| **Device connectors** | | | | | |
| For the electrical connection of SlimLine Compact modules (connects AS-i bus cable and 24 V DC auxiliary power supply $U_{aux}$ when using several SlimLine Compact modules) | | | | | |
| • Width 17.5 mm | **3RK1901-1YA00** | | 1 | 1 unit | 42C |
| • Width 22.5 mm | **3RK1901-1YA10** | | 1 | 1 unit | 42C |
| **Device termination connectors** | | | | | |
| Required for the last module in the network | | | | | |
| • Width 17.5 mm | **3RK1901-1YA01** | | 1 | 1 unit | 42C |
| • Width 22.5 mm | **3RK1901-1YA11** | | 1 | 1 unit | 42C |
| 3ZY1121-2BA00 | | | | | |
| **Removable terminals** | **Screw terminals** | | | | |
| • Screw terminals up to 2 x 1.5 $mm^2$ or 1 x 2.5 $mm^2$ | | | | | |
| - 2-pole | **3ZY1121-1BA00** | | 1 | 6 units | 41L |
| - 4-pole | **3ZY1141-1BA00** | | 1 | 6 units | 41L |
| | **Spring-loaded terminals (push-in)** | | | | |
| • Push-in terminals up to 2 x 1.5 $mm^2$ | | | | | |
| - 2-pole | **3ZY1121-2BA00** | | 1 | 6 units | 41L |
| - 4-pole | **3ZY1141-2BA00** | | 1 | 6 units | 41L |
| | | | | | |
| **Hinged cover** | **3ZY1450-1BA00** | | 1 | 5 units | 41L |
| Replacement for SlimLine Compact module, without terminal labeling, width 17.5 mm, yellow | | | | | |
| **Push-in lugs for wall mounting** | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| Two lugs are required per device | | | | | |
| **Coding pins for removable terminals** | **3ZY1440-1AA00** | | 1 | 12 units | 41L |
| For mechanical coding of the terminals | | | | | |
| 3ZY1450-1BA00 | | | | | |
|  3RT2900-1SB20 | | | | | |
| **Blank labels** | | | | | |
| Unit labeling plates[1] | | | | | |
| • 10 mm x 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| • 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| 3RA2908-1A | | | | | |
| **Tools for opening spring-loaded terminals** | **Spring-loaded terminals (push-in)** | | | | |
| Screwdriver for SIRIUS devices with spring-loaded terminals 3.0 mm x 0.5 mm, length approx. 200 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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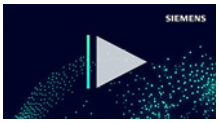
## Overview

CM AS-i Master ST for SIMATIC ET 200SP




Video: AS-Interface – Powerful integration in SIMATIC ET 200SP

**More information**

SIMATIC ET 200SP Manual Collection, see https://support.industry.siemens.com/cs/ww/en/view/84133942

Diagnostics blocks with visualization, see https://support.industry.siemens.com/cs/ww/en/view/109479103

AS-Interface block library for SIMATIC PCS 7 for easy connection of AS-Interface to PCS 7, see page 14/19 onwards

Released combinations of the AS-i modules for ET 200SP, see https://support.industry.siemens.com/cs/ww/en/view/103624653

The CM AS-i Master ST communications module is designed for use in the SIMATIC ET 200SP distributed I/O system and has the following features:

- Connection of up to 62 AS-Interface slaves
- Supports all AS-Interface master functions according to the AS-Interface specification V3.0
- User-friendly configuration with graphic or tabular display of the AS-i line in TIA Portal or STEP 7 (Classic) or via GSD in other systems
- Supply via AS-Interface cable
- Suitable for AS-i Power24V and for AS-Interface with 30 V voltage
- Integrated ground-fault monitoring for the AS-Interface cable
- Through connection to AS-Interface, the number of digital inputs and outputs available for the control system is greatly increased (max. 496 DI/496 DQ on the AS-Interface per CM AS-i Master ST).
- Integrated analog value processing

### *AS-i gateways with ET 200SP*

An AS-i gateway or AS-i link enables access to the AS-Interface data via PROFINET or PROFIBUS.

With the CM AS-i Master ST module, flexible and powerful PROFINET/AS-i links or PROFIBUS/AS-i link solutions are set up. Depending on the requirements, even several AS-i masters can be plugged into one ET 200SP station, so that the setup can easily be extended from a single master to double masters or multiple masters.

The maximum number of modules is determined by the ET 200SP interface module (IM): Up to 8 AS-i masters with PROFINET IM 155-6PN Standard, up to 43 AS-i masters with IM 155-6PN High Feature, or a single AS-i master with IM 155-6PN Basic. For the connection to PROFIBUS, the IM 155-6DP HF interface module with up to 7 AS-i master modules is used.

Since in many plants an ET 200SP station with I/O, motor starter or other peripheral modules is provided, the AS-i master modules are simply plugged in without any additional effort. There are countless possible combinations.

An AS-i Safety gateway can also be implemented without any problems by adding the safety-related module F-CM AS-i Safety ST in the ET 200SP station. This greatly simplifies the cabling and connection of distributed EMERGENCY STOP pushbuttons and protective door monitoring systems to a Failsafe CPU. The AS-i Safety application is completely configured in TIA Portal/STEP 7.

The ET 200SP modules CM AS-i Master ST and F-CM AS-i Safety ST (see page 2/34 onwards) can of course also be used directly on an ET 200SP CPU or F-CPU, so that an extremely compact SIMATIC control system with AS-i bus connection can be set up.

For further application possibilities, see the brochure "The modular AS-i master" at www.siemens.com/as-interface.

More information, see the SIMATIC ET 200SP Manual Collection.

### *Design*

The CM AS-i Master ST module has an ET 200SP module enclosure with a width of 20 mm. A type C0 BaseUnit (BU) is required for use in the ET 200SP.

The communications module has LED displays for diagnostics, operation, AS-i voltage and AS-i slave status and offers informative front-side module inscription for

- Plain-text marking of the module type and function class
- 2D matrix code (article and serial number)
- Circuit diagram
- Color coding module type communications module, light gray
- Hardware and firmware version
- Supported BaseUnit type BU: C0

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### *Function*

The CM AS-i Master ST communications module supports all specified functions of the AS-Interface specification V3.0.

The input/output values of the digital AS-i slaves can be activated via the cyclic process image. The values of the analog AS-i slaves are accessible via the cyclic process image or via data record transfer.

If required, master calls can be performed with the command interface, e.g. read/write parameters, read/write configuration.

Changeover of the operating mode, automatic application of the slave configuration and the re-addressing of a connected AS-i slave can be implemented via the control panel of the CM AS-i Master ST in STEP 7.

For the implementation of modular machine concepts, the AS-i slaves can be activated or deactivated via the PLC program (option handling). The configuration of AS-i slaves can be modified while being executed, thus enabling variable machine setups and tool changing with integrated input/output modules during ongoing operation. AS-i input/output modules can be added to the system without deactivating the controller.

An existing AS-i installation can be read into the STEP 7 hardware configuration and adapted and documented in the project. Analog values are transmitted via the cyclic process image, the length of which is adjustable and extendable up to 288 bytes (depending on the interface module (IM) used).

Diagnostics information is accessed via automatic alarm indications, via the status information in the process image or via the graphical status display in the online diagnostics of the TIA Portal. The transmission quality of the AS-i network can also be read out. To avoid configuration errors, duplicate addresses can be detected on the AS-i network.

Configuration is possible with SIMATIC CPUs S7-300 up to S7-1500 and with a SINUMERIK 840D sl or other controller.

The online diagnostic status of the AS-i slaves can be displayed directly on the slaves in the network view in TIA Portal (for S7-1500 CPUs with firmware version V 2.0 or higher).

Notes on security:

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.

For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

### *Configuration*

The following software is required for configuration of the CM AS-i Master ST module:

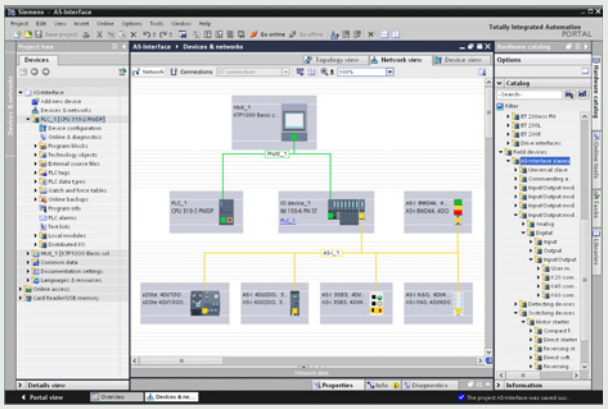
- STEP 7 (TIA Portal) or
- STEP 7 (Classic) or
- the GSD file of the ET 200SP with STEP 7 or another engineering tool

STEP 7 enables user-friendly configuration and diagnostics of the AS-i master and any connected slave modules.

Alternatively, you can also apply the AS-Interface ACTUAL configuration as the TARGET configuration at the "touch of a button" via the control panel integrated in the TIA Portal or an optional expansion button. Configuration with the GSD file is possible only with the button.

The CM AS-i Master ST module occupies up to 288 input bytes and up to 288 output bytes in the I/O data of the ET 200SP station. The I/O assignment depends on the configuration in STEP 7.

Together with an ET 200SP CPU 1510SP, 1512SP or 1515SP PC, preprocessing of safe AS-i signals directly in the ET 200SP station and setting up of an independent AS-i station without a higher-level CPU are possible.



Configuration of an AS-Interface network with CM AS-i Master ST via the TIA Portal

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## Benefits

The CM AS-i Master ST for ET 200SP communications module enables modular, simple and high-performance expansion of AS-interface networks via engineering in the TIA Portal.

Up to eight CM AS-i Master ST units can be plugged into one ET 200SP station with IM 155-6PN Standard. When using the IM 155-6 PN High Feature, the number of CM AS-i Master ST in the ET 200SP station can be further increased. The maximum configuration depends on the interface module used. Multiple masters as well as single masters can thus be implemented in the ET 200SP depending on the number of modules.

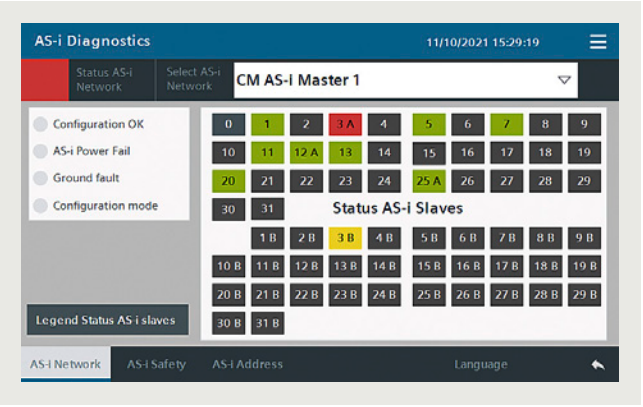
Together with the interface module, a scalable PROFINET/AS-i link or PROFIBUS/AS-i link can be assembled.

Using STEP 7, the AS-i network is consistently configured and programmed with only one configuration tool.

The PRONETA PC program (for ET 200SP with PROFINET interface module) is available for convenient input/output testing during the commissioning of an AS-i network without a CPU; see www.siemens.com/proneta.

For the connection of an AS-i network to systems with Ethernet/IP and Modbus TCP, the ET 200SP MultiFieldbus interface module IM155-6MF in combination with the CM AS-i Master ST module is available.

For diagnostics during ongoing operation, diagnostics blocks with clearly arranged visualization on the SIMATIC HMI panel are available or can be downloaded free of charge via a web browser, see https://support.industry.siemens.com/cs/ww/en/view/109479103.




CM AS-i Master ST diagnostics block

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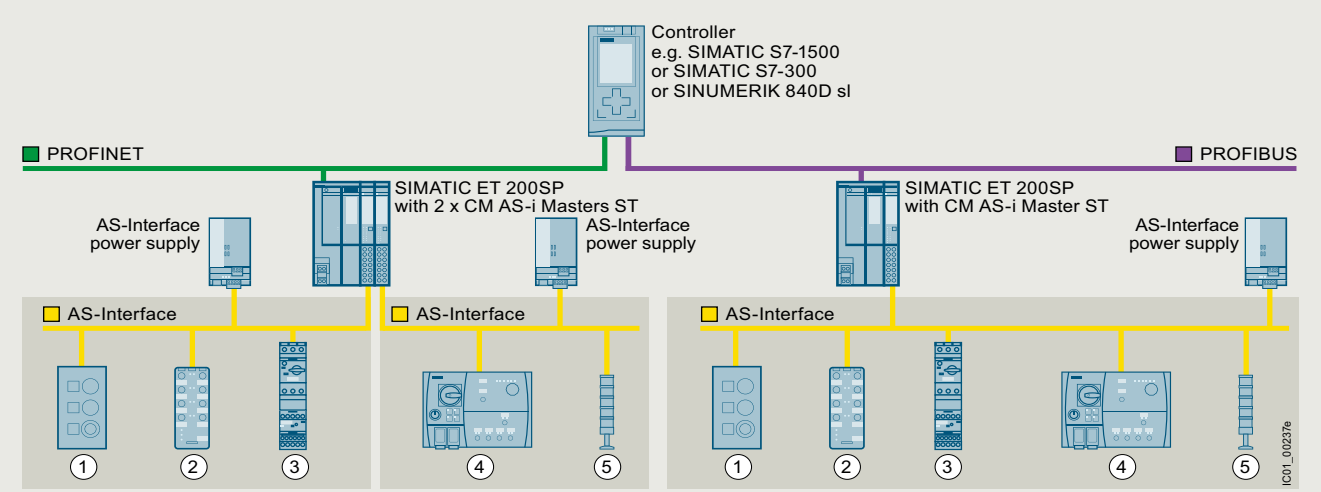
## Application

***Configuration examples of AS-Interface networks with CM AS-i Master ST for SIMATIC ET 200SP***




Configuration of AS-Interface networks under a SIMATIC ET 200SP

## Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK7137-6SA00-0BC1 | **CM AS-i Master ST communications module**<br>• AS-Interface master for SIMATIC ET 200SP, can be plugged onto BaseUnit type C0<br>• Corresponds to AS-Interface specification V3.0<br>• Dimensions W x H x D (mm): 20 x 73 x 58 | **3RK7137-6SA00-0BC1** | | 1 | 1 unit | 42C |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories

| Version | Spring-loaded terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| <br>6ES7193-6BP20-0DC0 | **BaseUnit BU20-P6+A2+4D**<br>• BaseUnit (light), BU type C0<br>• Suitable for the CM AS-i Master ST module<br>• For connection of the AS-Interface cable to the CM AS-i Master ST<br>• Start of an AS-i network, isolation of the AS-i voltage from the left-hand module | **6ES7193-6BP20-0DC0** | | 1 | 1 unit | 255 |

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| <br>6ES7155-6AR00-0AN0 <br>6ES7155-6AA01-0BN0 | **PROFINET IM 155-6PN Basic interface modules**<br>Max. 12 I/O modules,<br>max. 32 bytes of I/O data per station | | | | |
| | • Including server module and 2 x RJ45 ports (supplied without RJ45 plug) | **6ES7155-6AR00-0AN0** | | 1 | 1 unit | 255 |
| | **PROFINET IM 155-6PN Standard interface modules**<br>Max. 32 I/O modules,<br>max. 256 bytes I/O data per station | | | | |
| | • Including server module and bus adapter 2 x RJ45 (supplied without RJ45 plug) | **6ES7155-6AA01-0BN0** | | 1 | 1 unit | 255 |
| | • Including server module (bus adapter must be ordered separately, see below) | **6ES7155-6AU01-0BN0** | | 1 | 1 unit | 255 |
| <br>6ES7155-6AU01-0CN0 | **PROFINET IM 155-6PN High Feature interface modules**<br>Max. 64 I/O modules,<br>max. 1 440 bytes I/O data per station | | | | |
| | • **IM 155-6PN/2 High Feature**<br>2-port IM with a bus adapter slot, including server module and optional strain relief (bus adapter must be ordered separately, see below) | **6ES7155-6AU01-0CN0** | | 1 | 1 unit | 255 |
| | • **IM 155-6PN/3 High Feature**<br>3-port IM with two bus adapter slots, including server module and optional strain relief (bus adapter must be ordered separately, see below) | **6ES7155-6AU30-0CN0** | | 1 | 1 unit | 255 |
| <br>6ES7155-6AU00-0DN0 | **PROFINET IM 155-6PN High Speed interface modules**<br>Max. 30 I/O modules,<br>max. 1 440 bytes I/O data per station | | | | |
| | • Including server module (bus adapter must be ordered separately, see below) | **6ES7155-6AU00-0DN0** | | 1 | 1 unit | 255 |
| | **PROFIBUS IM 155-6DP High Feature interface modules**<br>Max. 32 I/O modules,<br>max. 244 bytes I/O data per station | | | | |
| | • Including server module and PROFIBUS plug | **6ES7155-6BA01-0CN0** | | 1 | 1 unit | 255 |
| <br>6ES7155-6MU00-0CN0 | **MultiFeldbus interface modules IM 155-6MF High Feature**<br>For operation on PROFINET, EtherNet/IP or Modbus TCP controllers, 1 slot for bus adapter, max. 64 I/O modules | | | | |
| | • Including server module and optional strain relief (bus adapter must be ordered separately, see below) | **6ES7155-6MU00-0CN0** | | 1 | 1 unit | 255 |
| | For more information, see https://support.industry.siemens.com/cs/ww/de/view/109779189. | | | | |
| <br>6ES7193-6AR00-0AA0 <br>6ES7193-6AF00-0AA0 | **Bus adapters for PROFINET/Ethernet**<br>For connection of the Ethernet cable to the PROFINET IM 155-6PN interface module and the MultiFieldbus IM 155-6MF interface module | | | | |
| | • Connection 2 x RJ45 (supplied without RJ45 plug) | **6ES7193-6AR00-0AA0** | | 1 | 1 unit | 255 |
| | • Connection 2 x FC (FastConnect) | **6ES7193-6AF00-0AA0** | | 1 | 1 unit | 255 |
| | For more bus adapters with fiber-optic cable connection, see Industry Mall. | | | | | |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

F-CM AS-i Safety ST for SIMATIC ET 200SP

**More information**

SIMATIC ET 200SP Manual Collection, see
https://support.industry.siemens.com/cs/ww/en/view/84133942

Diagnostics blocks with visualization, see
https://support.industry.siemens.com/cs/ww/en/view/109479103

Released combinations of the AS-i modules for ET 200SP, see
https://support.industry.siemens.com/cs/ww/en/view/103624653

The F-CM AS-i Safety ST fail-safe communications module supplements an AS-Interface network without additional wiring to produce a safety-related AS-i network.

Important features:

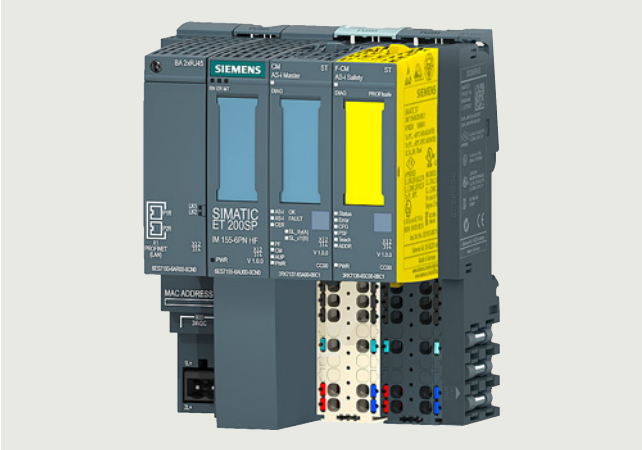
- Fail-safe communications module for the ET 200SP
  - 31 fail-safe input channels in the process image
  - 16 fail-safe output channels in the process image
  - Certified up to SIL 3 (IEC 62061)/PL e (ISO 13849-1)
  - Parameterization conforms with other Failsafe I/O modules of the ET 200SP
- The communications module supports PROFIsafe in PROFINET and PROFIBUS configurations. Can be used with fail-safe SIMATIC S7-300F/S7-400F CPUs and S7-1500F CPUs and also the Failsafe versions of the ET 200SP station with ET 200SP F-CPU 1510SP F, 1512SP F or 1515SP PC F.
- For reading up to 31 fail-safe AS-i input slaves
  - Two sensor inputs/signals for each fail-safe AS-i input slave
  - Adjustable evaluation of sensor signals: 2-channel or 2 x 1-channel
  - Integrated discrepancy evaluation in the case of 2-channel signals
  - Integrated AND operation in the case of 2 x 1-channel signals
  - Input delay can be parameterized
  - Start-up test can be set
  - Sequence monitoring can be activated
- For control of up to 16 fail-safe AS-i output circuit groups
  - The output circuit groups are controlled independently of one another.
  - One output circuit group can act on one or more actuators (e.g. to switch drives simultaneously).
  - The F-CM AS-i Safety ST module transmits the switching command of the output circuit group on the AS-i cable. A safe AS-i output module that is installed at any point on the AS-i cable receives the switching command and switches the connected actuator (e.g. contactor).
  - Simple fault acknowledgment via the process image
- Simple module replacement thanks to automatic importing of the safety parameters from the coding element
- Comprehensive diagnostics options
- Can be plugged onto type C1 or type C0 BaseUnits (BU)
- Informative automatic alarm indications
- Supply via AS-Interface voltage
- Eight LED displays for diagnostics, operating state, fault indication and supply voltage
- Informative front-side module inscription
  - Plain-text marking of the module type and function class
  - 2D matrix code (article and serial number)
  - Circuit diagram
  - Color coding module type communications module: light gray
  - Hardware and firmware version
  - Supported BaseUnit type BU: C1, C0

### *Design*

The fail-safe F-CM AS-i Safety ST module has an ET 200SP module enclosure with a width of 20 mm.

One AS-i master according to the AS-i specification V3.0 and safe AS-i input slaves and/or safe AS-i output modules are needed for operation. The CM AS-i Master ST communications module (article number 3RK7137-6SA00-0BC1) is recommended as the AS-i master for the ET 200SP, see page 2/29 onwards.

Simple combination of the CM AS-i Master ST and F-CM AS-i Safety ST modules in one ET 200SP station results in a powerful, safety-related network transition between PROFINET (or PROFIBUS) and AS-Interface, which can be expanded further in a modular fashion.




Combination of an ET 200SP interface module, CM AS-i Master ST and F-CM AS-i Safety ST

With the digital and analog I/O modules of the ET 200SP, additional local inputs and outputs can be realized so as to ensure that the modular AS-i router complies precisely with customer requirements. Expansion variants for almost every application are possible thanks to the selection of standard and Failsafe I/O modules.

Besides the single AS-i master, double, triple or generally multiple masters can be realized with or without Failsafe functionality.

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Supported BaseUnits

With the combination of the CM AS-i Master ST and F-CM AS-i Safety ST modules, the CM module is plugged onto a light type C0 BaseUnit and, immediately to the right of it, the F-CM module is plugged onto a dark type C1 BaseUnit. The AS-i cable is connected only on the light BaseUnit of the CM module.

Notes on security:

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.

For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

***Configuration***

The following software is required for configuration of the F-CM AS-i Safety ST module:

- STEP 7 (TIA Portal) and Safety Advanced or
- STEP 7 (Classic) and Distributed Safety or F-Configuration Pack SP11 or SIMATIC S7 F/FH systems

Configuration and programming are done entirely in the STEP 7 user interface. No additional configuration software is needed for commissioning.

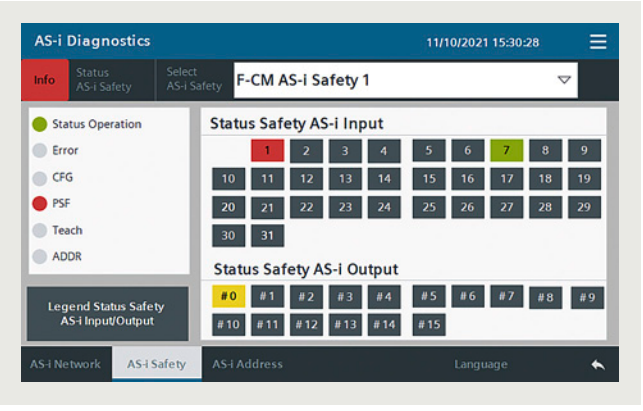
Data management – together with all other configuration data of the SIMATIC – is realized completely in the S7 project.

The input and output channels are assigned to the process image automatically and manual linking via configuration blocks is not necessary.

If the F-CM AS-i Safety ST module is replaced, all necessary settings are automatically imported into the new module.

The F-CM AS-i Safety ST module occupies 16 input bytes and 8 output bytes in the I/O data of the ET 200SP station.

For diagnostics during ongoing operation, diagnostics blocks with clearly arranged visualization on the SIMATIC HMI panel are available or can be downloaded free of charge via a web browser, see https://support.industry.siemens.com/cs/ww/en/view/109479103.




Diagnostics block for F-CM AS-i Safety ST

## Application

Thanks to use of the fail-safe module in the ET 200SP, it is possible to fulfill the safety-related application requirements in a manner that is integrated in the overall automation solution.

The safety functions required for fail-safe operation are integrated in the modules. Communication with the fail-safe SIMATIC S7 CPUs is realized via PROFIsafe.

The safety application is programmed in the SIMATIC S7 F-CPU with Distributed Safety, S7 F/FH Systems or Safety Advanced. The fail-safe input signals of the ASIsafe slave modules are read via the AS-i bus line and are combined with any chosen further signals in the fail-safe program.

The fail-safe output signals can be output via safe SIMATIC output modules or also directly via AS-i output modules. No special functions are required for this in the program.

Operation with SINUMERIK 840D sl is possible with SINUMERIK software version V4.7 SP2 HF1 or higher.

Together with an ET 200SP station with ET 200SP F-CPU 1510SP F, 1512SP F or 1515SP PC F, pre-processing of safe AS-i signals directly in the ET 200SP station is possible, as well as the configuration of an autonomous AS-i Safety station without a higher-level CPU.

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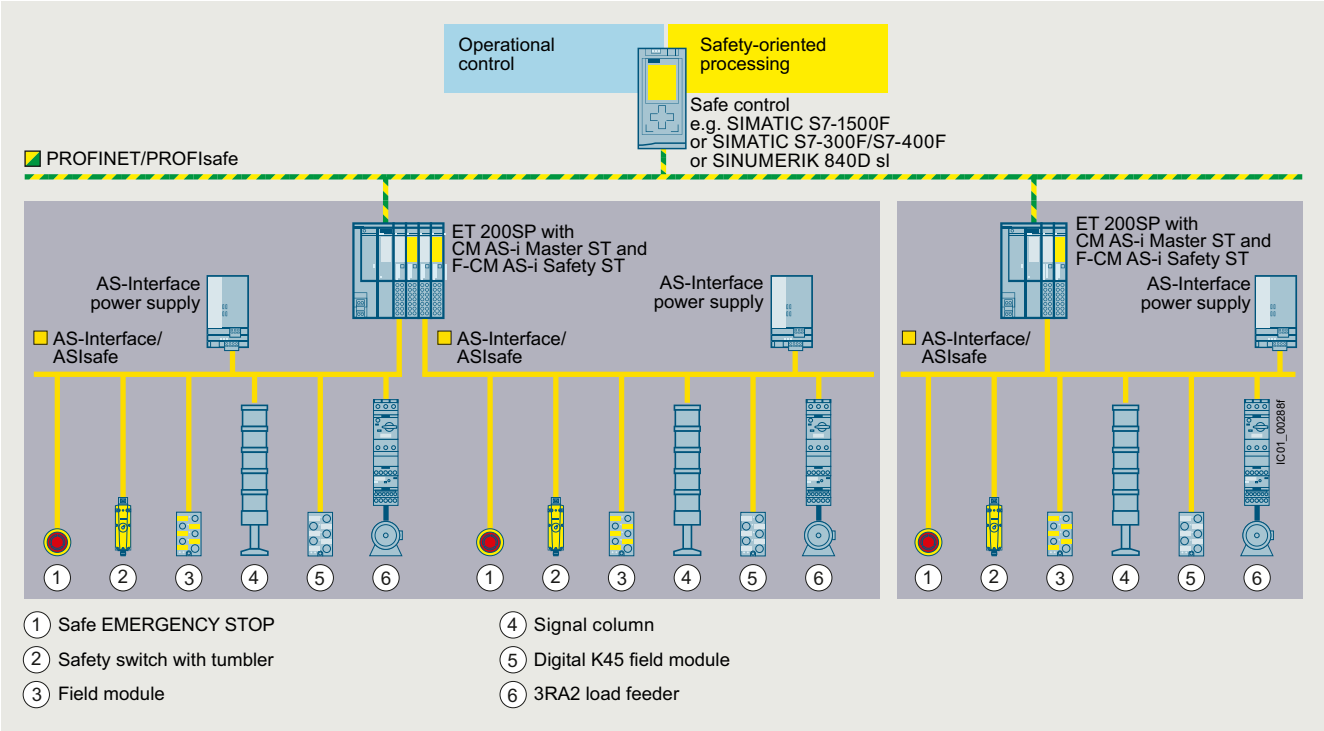
***Configuration examples of AS-Interface networks with CM AS-i Master ST and F-CM AS-i Safety ST for SIMATIC ET 200SP***




AS-Interface configuration comprising an ET 200SP station with CM AS-i Master ST and F-CM AS-i Safety ST modules

## Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK7136-6SC00-0BC1 | **F-CM AS-i Safety ST communications module**<br>• Fail-safe module for SIMATIC ET 200SP, can be plugged onto BaseUnit type C1 (alternatively type C0)<br>• Operation requires an AS-i master, e.g. CM AS-i Master ST (see page 2/29 onwards)<br>• Can be used up to SIL 3 (IEC 62061)/PL e (ISO 13849-1)<br>• Coding element type H (included in scope of supply)<br>• Dimensions W x H x D (mm): 20 x 73 x 58 | **3RK7136-6SC00-0BC1** | | 1 | 1 unit | 42C |

## Accessories

| | Version | Spring-loaded terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 6ES7193-6BP20-0BC1 | **BaseUnit BU20-P6+A2+4B**<br>• BaseUnit (dark), BU type C1<br>• Suitable for the F-CM AS-i Safety ST fail-safe communications module<br>• Continuation of an AS-i network, connection with the AS-i voltage of the left-hand module | **6ES7193-6BP20-0BC1** | | 1 | 1 unit | 255 |
| | **Coding element type H (spare part)**<br>• For the ET 200SP modules F-CM AS-i Safety ST and CM 4xIO-Link<br>• Packing unit 5 items | **6ES7193-6EH00-1AA0** | | 1 | 5 units | 256 |

More accessories, see page 2/33.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

CM 1243-2 communications module for S7-1200

**More information**

Equipment Manual for AS-i master CM 1234-2 and AS-i DCM 1271 decoupling module, see https://support.industry.siemens.com/cs/ww/en/view/57358958

The CM 1243-2 communications module is the AS-Interface master for the SIMATIC S7-1200 and has the following features:

- Connection of up to 62 AS-Interface slaves
- Integrated analog value transmission
- Supports all AS-Interface master functions in accordance with the AS-Interface specification V3.0
- Indication of the operating state on the front of the device displayed via LED
- Display of operating mode, AS-Interface voltage faults, configuration faults and peripheral faults via LED behind the front panel
- Compact enclosure in the design of the SIMATIC S7-1200
- Suitable for AS-i Power24V and for AS-Interface with 30 V voltage: A standard 24 V power supply unit can be used in combination with the optional DCM 1271 data decoupling module.
- Configuration and diagnostics via the TIA Portal

### *Design*

The CM 1243-2 communications module is positioned to the left of the S7-1200 CPU and linked to the S7-1200 via lateral contacts.

It has:

- Terminals for two AS-i cables (internally jumpered) via two screw terminals
- One terminal for connection to the functional ground
- LEDs for indication of the operating state and fault statuses of the connected slaves

The screw terminals (included in scope of supply) can be removed to facilitate installation.

### *Function*

The CM 1243-2 supports all specified functions of the AS-Interface specification V3.0.

The values of the digital AS-i slaves can be activated via the process image of the S7-1200. During configuration of the slaves in the TIA Portal, the values of the analog AS-i slaves can also be accessed directly in the process image.

If required, master calls can be performed with the data record interface, e.g. read/write parameters, read/write configuration.

Changeover of the operating mode, automatic application of the slave configuration and the re-addressing of a connected AS-i slave can be implemented via the control panel of the CM 1243-2 in the TIA Portal.

The optional DCM 1271 data decoupling module (see "Accessories", page 2/38) has an integrated detection unit for detecting ground faults on the AS-Interface cable. The integrated overload protection also disconnects the AS-Interface cable if the drive current required exceeds 4 A. For more information on DCM 1271, see page 2/73.

Notes on security:

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.

For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

### *Configuration*

The TIA Portal enables user-friendly configuration and diagnostics of the AS-Interface master and any connected slave modules.

When operated on an S7-1200 CPU with firmware version V4.0 or higher, the firmware version V1.1 (or higher) is required for the CM 1243-2.

## Benefits

- More flexibility and versatility in the use of SIMATIC S7-1200 as the result of a significant increase in the number of digital and analog inputs/outputs available
- Very easy configuration and diagnostics of the AS-Interface via the TIA Portal
- Simple operation with AS-Interface power supply unit (see page 2/67) possible without restrictions.
- Alternatively: No need for the AS-i power supply unit with AS-i Power24V. The AS-Interface cable is supplied through an existing 24 V DC PELV power supply unit. For decoupling, the AS-i DCM 1271 data decoupling module is required, see "Accessories" and page 2/73.
- LEDs for indication of fault statuses for fast diagnostics
- Monitoring of AS-Interface voltage facilitates diagnostics

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## Application

The CM 1243-2 is the AS-Interface master connection for the 12xx CPUs of the SIMATIC S7-1200. Through connection to AS-Interface, the number of digital inputs and outputs available for the S7-1200 is greatly increased (max. 496 DI/496 DQ on the AS-Interface per CM).

The integrated analog value processing also makes the analog values available at the AS-Interface for the S7-1200. Up to 31 analog slaves with a standard address (each with up to four channels) or up to 62 analog slaves with an A/B address (each with up to two channels) are possible per CM.

Operating conditions

- The CM 1243-2 communications module exchanges data with the S7-1200 CPU with a cycle time of 10 ms.
- The AS-i cycle time depends on the AS-i bus capacity and is up to 5 ms in the case of 31 slaves addresses; for more information, see Equipment Manual for AS-i master CM 1243-2 and AS-i DCM 1271 data decoupling module, https://support.industry.siemens.com/cs/ww/en/view/57358958.
- For calculation of the maximum switching frequency at inputs/outputs of AS-i slaves, these cycle times and the runtime of the user program must be added up.

## Selection and ordering data

| | Version | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK7243-2AA30-0XB0 | **CM 1243-2 communications module**<br>• AS-Interface masters for SIMATIC S7-1200<br>• Corresponds to AS-Interface specification V3.0<br>• Removable terminals (included in the scope of supply)<br>• Dimensions W x H x D (mm): 30 x 100 x 75 | **3RK7243-2AA30-0XB0** | | 1 | 1 unit | 42C |

Note:

The CM 1243-2 communications module is available as a SIPLUS version under article number 6AG1243-2AA30-7XB0 in the extended temperature range (from -25 to +70 °C) and for use in harsh environmental conditions (coated according to environment standard IEC 60721).

For more information, see www.siemens.com/siplus-extreme.

## Accessories

| | Version | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK7271-1AA30-0AA0 | **DCM 1271 data decoupling module**<br>• Max. 1 x 4 A<br>• Removable terminals (included in the scope of supply)<br>• Dimensions W x H x D (mm): 30 x 100 x 75 | **3RK7271-1AA30-0AA0** | | 1 | 1 unit | 42C |
| | **Screw terminals (spare part)** | | | | | |
| | • 5-pole,<br>For AS-i master CM 1243-2 and AS-i DCM 1271 data decoupling module | **3RK1901-3MA00** | | 1 | 1 unit | 42C |
| | • 3-pole,<br>For AS-i DCM 1271 data decoupling module for connecting the power supply unit | **3RK1901-3MB00** | | 1 | 1 unit | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

CP 343-2P/CP 343-2

**More information**

Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/15754/man

For diagnostics during ongoing operation, diagnostics blocks with clearly arranged visualization on the SIMATIC HMI panel are available or can be downloaded free of charge via a web browser, see https://support.industry.siemens.com/cs/ww/en/view/61892138

AS-Interface block library for SIMATIC PCS 7 for easy connection of AS-Interface to PCS 7, see page 14/19 onwards

The CP 343-2P communications processor is the AS-Interface master for the SIMATIC S7-300 and the ET 200M distributed I/O station, with user-friendly parameterizing options.

The CP 343-2 is the basic version of the module.

The CP 343-2P/CP 343-2 has the following characteristics:

- Connection of up to 62 AS-Interface slaves
- Integrated analog value transmission
- Support of all AS-Interface master functions in accordance with the AS-Interface specification V3.0
- Status displays of operating states and indication of the readiness for operation of connected slaves by means of LEDs in the front panel
- Fault indications (including AS-Interface voltage errors, configuration errors) by means of LEDs on the front plate.
- Compact enclosure in the design of the SIMATIC S7-300
- Suitable for AS-Interface with 30 V voltage and AS-i Power24V
- Additionally for CP 343-2P: Supports the configuration of the AS-Interface network with STEP 7

### *Design*

The CP 343-2P/CP 343-2 is connected like an I/O module to the S7-300. It has:

- Two terminal connections for connecting the AS-Interface cable directly.
- LEDs in the front panel for indicating the operating state and the readiness for operation of all connected and activated slaves
- Pushbuttons for switching over the master operating state and for adopting the existing ACTUAL configuration of the AS-i slave as the TARGET configuration

### *Function*

The CP 343-2P/CP 343-2 supports all specified functions of the AS-Interface specification V3.0.

Each CP 343-2P/CP 343-2 occupies 16 bytes in the I/O address area of the SIMATIC S7-300. The digital I/O data of the standard slaves and A slaves are saved in this area. The digital I/O data of the B slaves and the analog I/O data can be accessed with the S7 system functions for read/write data records.

If required, master calls can be performed with the command interface, e.g. read/write parameters, read/write configuration.

For more information, see https://support.industry.siemens.com/cs/ww/en/view/51678777.

Notes on security:

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For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

### *Configuration*

All connected AS-Interface slaves are configured at the press of a button. No further configuration of the CP is required.

Additionally for CP 343-2P

The CP 343-2P also supports configuring of the AS-Interface network with STEP 7. Specifying the AS-i configuration in HW Config facilitates the setting of slave parameters and documentation of the plant. Uploading the ACTUAL configuration of an already configured AS-Interface network is also supported. The saved configuration cannot be overwritten at the press of a button and is therefore tamper-proof.

## Benefits

- Shorter startup times through simple configuration at the press of a button
- Design of flexible machine-related structures using the ET 200M distributed I/O system
- Provides diagnostics of the AS-Interface network
- Well suited also for complex applications thanks to connection options for 62 slaves and integral analog value processing
- Reduction of standstill and servicing times in the event of a fault thanks to the LED displays:
  - Status of the AS-Interface network
  - Slaves connected and their readiness for operation
  - Monitoring of the AS-Interface voltage
- Lower costs for stock keeping and spare parts inventory because the CP can be used for the SIMATIC S7-300 and also for the ET 200M
- Additionally for CP 343-2P: Improved plant documentation and support for service assignments thanks to a description of the AS-Interface configuration in the STEP 7 project
- Simple operation with AS-Interface power supply unit (see page 2/67) possible without restrictions.
- Alternatively: No need for the AS-i power supply unit with AS-i Power24V. The AS-Interface cable is supplied through an existing 24 V DC PELV power supply unit. An S22.5 AS-i data decoupling module (e.g. 3RK1901-1DE12-1AA0) is required for the decoupling, see page 2/71.

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## Application

The CP 343-2P/CP 343-2 is the AS-Interface master connection for SIMATIC S7-300 and ET 200M.

Through connection to AS-Interface it is possible to access max. 248 DI/248 DQ per CP, using 62 A/B slaves with 4 DI/4 DQ each.

With the integrated analog value processing, it is easy to transmit analog signals. Up to 62 analog slaves with an A/B address (each with up to two channels) or up to 31 analog slaves with a standard address (each with up to four channels) are possible per CP.

The CP 343-2P is the further development of the CP 343-2 and contains its entire functionality. An existing STEP 7 user program for a CP 343-2 can thus be used without restrictions with a CP 343-2P. It is only in STEP 7 HW Config that the two modules are configured differently, with the CP 343-2P offering additional options. This is why the CP 343-2P is recommended.

## Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 6GK7343-2AH11-0XA0 | **CP 343-2P communications processors**<br>• Device version with expanded configuration options for connection of SIMATIC S7-300 and ET 200M to AS-Interface<br>• Configuration of the AS-i network using the SET key or STEP 7<br>• Without front connector<br>• Corresponds to AS-Interface specification V3.0<br>• Dimensions W x H x D (mm): 40 x 125 x 120 | **6GK7343-2AH11-0XA0** | | 1 | 1 unit | 42C |
| 6GK7343-2AH01-0XA0 | **CP 343-2 communications processors**<br>• Basic version for connection of SIMATIC S7-300 and ET 200M to AS-Interface<br>• Configuration of the AS-i network using the SET key<br>• Without front connector<br>• Corresponds to AS-Interface specification V3.0<br>• Dimensions W x H x D (mm): 40 x 125 x 120 | **6GK7343-2AH01-0XA0** | | 1 | 1 unit | 42C |

## Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Front connector, 20-pole** | | | | | |
| • With screw terminals | **6ES7392-1AJ00-0AA0** | | 1 | 1 unit | 230 |
| • With spring-loaded terminals | **6ES7392-1BJ00-0AA0** | | 1 | 1 unit | 230 |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

DP/AS-Interface Link 20E manual

**More information**

Manual for DP/AS-Interface Link 20E, see https://support.industry.siemens.com/cs/ww/en/view/5281638

| PN | DP-M | DP-S | AS-i M | | |
|---|---|---|---|---|---|
| | | ● | ● | | |

IK10_10195a

DP/AS-Interface Link 20E connects PROFIBUS DP to AS-Interface and has the following features:

- PROFIBUS DP slave and AS-Interface master
- Up to 62 AS-Interface slaves, each with four digital inputs and four digital outputs as well as analog slaves can be connected
- Integrated analog value transmission
- Supports all AS-Interface master functions according to the AS-Interface specification V3.0
- Supply from AS-Interface cable; hence no additional power supply required
- Suitable for AS-i Power24V (from product version 2/ firmware version 3.1) and for AS-Interface with 30 V voltage
- Supports uploading of the AS-Interface configuration in STEP 7

### *Routers*

High-performance routers between PROFINET and AS-Interface and between PROFIBUS and AS-Interface can be set up by combining the CM AS-i Master ST and F-CM AS-i Safety ST modules in an ET 200SP station (for safety-related applications), see pages 2/29 and 2/34.

### *Design*

- Compact plastic enclosure in degree of protection IP20 for DIN-rail mounting
- LEDs in the front panel for indicating the operating state and functional readiness of all connected slaves
- Setting of PROFIBUS DP address is possible by pressing a button
- LED display of the PROFIBUS DP slave address, PROFIBUS DP bus faults and diagnostics
- Two pushbuttons for switching over the operating state and for adopting the existing ACTUAL configuration as the TARGET configuration

### *Functionality*

Communication

The DP/AS-Interface Link 20E enables a DP master to access all the slaves of an AS-Interface network.

The DP/AS-Interface Link 20E occupies a standard 32 bytes of input data and 32 bytes of output data in which the digital I/O data of the connected AS-Interface slaves (standard and A/B addressing) of an AS-i line is stored.

The size of the input/output image can be compressed so that only the actually required I/O address area is occupied in the system of the PROFIBUS DP master.

The analog I/O data can be accessed with the S7 system functions for read/write data records.

Configuration

The DP/AS-Interface Link 20E is configured as follows:

- With STEP 7 (TIA Portal) or STEP 7 (Classic)
  In the case of STEP 7 configuration, the AS-Interface configuration can be uploaded in STEP 7. Furthermore, AS-Interface slaves from Siemens can also be conveniently configured in HW Config (slave selection dialog).
- By adopting the ACTUAL configuration of the AS-Interface by using the SET pushbutton on the front panel.
- Alternatively, DP/AS-Interface Link 20E can be integrated by means of the PROFIBUS GSD file in the engineering tool (e.g. for non-Siemens engineering tools).

## Benefits

- Reduction of installation costs because the power is supplied entirely via the AS-Interface cable, which means that no additional power supply is required
- Short startup times thanks to easy configuration at the touch of a button
- The LED displays help reduce downtime and service times if a slave fails
- Quick and easy commissioning by reading the AS-Interface configuration
- For diagnostics during ongoing operation, diagnostics blocks with clearly arranged visualization on the SIMATIC HMI panel are available or can be downloaded free of charge via a web browser; see https://support.industry.siemens.com/cs/ww/en/view/61892138.

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## DP/AS-Interface Link 20E

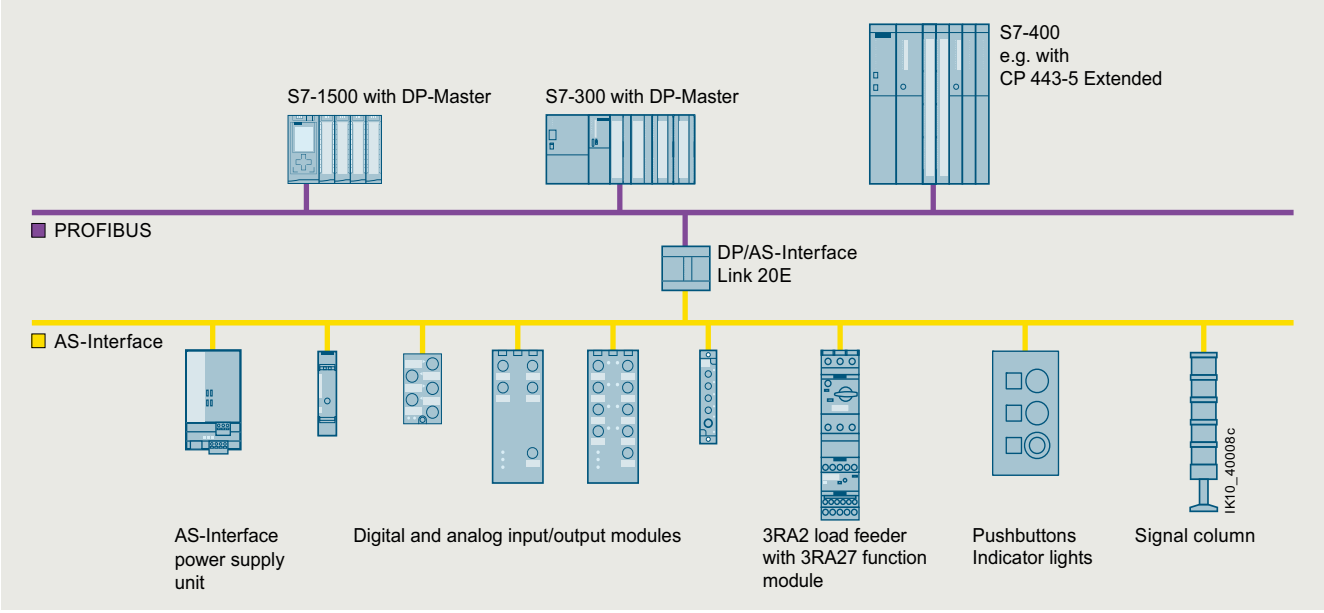
### Application

The DP/AS-Interface Link 20E is a PROFIBUS DP slave (according to IEC 61158/IEC 61784) and an AS-Interface master (according to IEC 62026-2). It enables the AS-Interface to be operated on PROFIBUS DP.

Up to 248 DI/248 DQ can be operated via the DP/AS-Interface Link 20E using 62 A/B slaves with 4 DI/4 DQ each.

PROFIBUS DP masters (DP-V0) can exchange digital I/O data cyclically with the AS-Interface.

PROFIBUS DP masters with acyclic services (DP-V1) are additionally able to exchange analog I/O data and initiate AS-Interface master calls (e.g. reading/writing the AS-i configuration during normal operation).




Transition from PROFIBUS DP to AS-Interface using DP/AS-Interface Link 20E

### Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **DP/AS-Interface Link 20E** | | | | | |
| 6GK1415-2AA10 | | | | | |
| Router between PROFIBUS DP and AS-Interface in degree of protection IP20; including screw terminals for connection of the AS-Interface cable; corresponds to AS-Interface specification V3.0; dimensions W x H x D (mm): 90 x 80 x 60 (dimensions without fixing lugs) | | | | | |
| | **Screw terminals** | | | | |
| | **6GK1415-2AA10** | | 1 | 1 unit | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **PROFIBUS FC standard cable GP**<br>FastConnect standard type with special design for fast installation, 2-core, shielded | **6XV1830-0EH10** | | 1 | 1 M | 5K1 |
| **PROFIBUS FastConnect bus connector**<br>With insulation displacement connection, max. transmission rate 12 Mbps, activatable terminating resistor integrated | | | | | |
| • RS 485 bus connector with 90° cable outlet | | | | | |
| - Without PG connection socket | **6ES7972-0BA52-0XA0** | | 1 | 1 unit | 250 |
| - With PG connection socket | **6ES7972-0BB52-0XA0** | | 1 | 1 unit | 250 |
| • RS 485 bus connector with diagonal cable outlet (35°) | | | | | |
| - Without PG connection socket | **6ES7972-0BA61-0XA0** | | 1 | 1 unit | 250 |
| - With PG connection socket | **6ES7972-0BB61-0XA0** | | 1 | 1 unit | 250 |
| **PROFIBUS FastConnect stripping tool**<br>Preset stripping tool for speedy stripping of PROFIBUS FastConnect bus cables | **6GK1905-6AA00** | | 1 | 1 unit | 5K2 |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

K60

K45

K20

Three coordinated series of AS-Interface compact modules with digital and analog compact modules and a high degree of protection are available for use in the field:

- Digital modules with a high degree of protection
  - Series K60, see pages 2/46 and 2/48
  - Series K45, see page 2/51
  - Series K20, see page 2/52
- Analog modules with a high degree of protection
  - Series K60, see page 2/55

All compact modules are characterized by particularly simple handling. The K60 and K45 modules are mounted with a mounting plate. The mounting plate is used to mount the AS-Interface flat cables and enables mounting on a wall or DIN rail.

The particularly narrow K20 modules are directly mounted without a mounting plate and connected to the AS-Interface using a round cable.

### *Connection types*

For flexible connection of different sensors and actuators, the following pin assignments are available on the I/O modules with M12 sockets:

Standard assignment

With the standard assignment, one sensor/actuator is connected per M12 socket. In this case the signal for the outputs is acquired at pin 4 while the signal for the inputs is acquired at pin 4 and pin 2. As the result, sensors can be connected directly to pin 2 and pin 4.

Y-assignment

With the Y-assignment, two sensors or two actuators can be connected to one M12 socket. In this case, both pin 4 and pin 2 are provided for one sensor signal and one actuator signal on each M12 socket.

In this case, the second socket is not required and is closed with a sealing cap.

Y-II assignment

The Y-II assignment offers the following options:

- Individual connection of a sensor/actuator to one M12 socket
- Connection of two sensors/actuators to one M12 socket as follows:
  - The signal of the first sensor/actuator is connected to pin 4 of the first socket.
  - The signal of the second sensor/actuator is connected to pin 2 of the first socket and to pin 4 of the second socket.

### *Overview of digital compact modules*

The following table provides an overview of the important features of the digital compact modules.

| Version | K60 | K45 | K20 |
|---|---|---|---|
| 8 inputs/2 outputs | ✓ | -- | -- |
| 8 inputs | ✓ | ✓ | -- |
| 4 inputs/4 outputs | ✓ | ✓ | ✓ |
| 4 inputs/3 outputs | ✓ | -- | -- |
| 4 inputs/2 outputs | ✓ | -- | -- |
| 4 inputs | ✓ | ✓ | ✓ |
| 2 inputs/2 outputs | -- | ✓ | ✓ |
| 4 outputs | ✓ | ✓ | ✓ |
| 3 outputs | -- | ✓ | -- |
| AS-Interface connection | Flat cable/ round cable | Flat cable | Round cable |
| I/O connection method | M12 | M12/M8 | M12/M8 |
| Pin assignment | Standard/Y-II/Y | Standard/Y | Standard/Y |
| Degree of protection | IP65/IP67/IP68/ IP69 (IP69K) | IP65/IP67 | IP65/IP67 |
| Addressing type A/B address | ✓ | ✓ | ✓ |

✓ Available
-- Not available

For safety modules for AS-Interface, see page 2/27.

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## Overview

K60

The K60 digital AS-Interface compact modules are characterized by optimized handling characteristics and user-friendliness. They permit the mounting times and startup times of AS-Interface to be reduced by up to 40%.

***Mounting and connection of the AS-Interface shaped cables***

Assembly of the K60 modules is performed with a mounting plate which accommodates the AS-Interface shaped cables. Two different mounting plates are offered for

- Wall mounting
- DIN-rail mounting

The mounting plate and the compact module are joined together by means of a screw, with simultaneous contacting of the AS-Interface cable by the service-proven insulation piercing method.

***Addressing and connection of the sensors/actuators***

Addressing of the K60 modules is performed using an addressing socket integrated in the compact module. The addresses can also be assigned after installation.

K60 modules with a maximum of four digital inputs and outputs

These compact modules contain the M12 standard connections for inputs and outputs. Using M12 standard plugs, a maximum of four sensors and four actuators can be connected to the compact module.

K60 compact modules with a maximum of eight digital inputs

These modules have eight digital inputs for connection through M12 plugs.

The module requires two AS-Interface addresses for processing all eight inputs. The addressing can thus be performed through a double addressing socket integrated in the module.

***K60 data couplers***

An AS-Interface data coupler has been added to the K60 compact module range. Integrated in this module are two AS-i slaves which are connected to two different AS-i networks. Each of the two integrated slaves has four virtual inputs and four virtual outputs. The bidirectional data transmission of four data bits between two AS-i networks is thus possible in a simple and cost-effective manner. The data coupler needs its own address in each AS-i network. The data coupler is supplied with power directly from the AS-i cable.

Each AS-i network works with a different cycle time depending on the number of stations. Hence two AS-i networks are not necessarily synchronous. For this reason, the AS-i data coupler can be used to transmit only standard data and no safety data.

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2

## Selection and ordering data

3RK1400-1DQ00-0AA3

**Digital I/O modules, IP67 - K60**

- PNP transistor
- Width 60 mm
- Connection method: M12
- Modules supplied without mounting plate

| Type | Current-carrying capacity of outputs | Slave addressing type | Pin assign-ment | Sensor power supply via | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| 8 inputs/ 2 outputs[1] | 2 A | A/B | Special | AS-i | **3RK2400-1HQ00-0AA3** | | 1 | 1 unit | 42C |
| 8 inputs[1] | -- | Standard | Y-II | AS-i | **3RK1200-0DQ00-0AA3** | | 1 | 1 unit | 42C |
| | -- | A/B | Y-II | AS-i | **3RK2200-0DQ00-0AA3** | | 1 | 1 unit | 42C |
| | -- | A/B | Y-II | $U_{aux}$ | **3RK2200-1DQ00-1AA3** | | 1 | 1 unit | 42C |
| 4 inputs/ 4 outputs | 2 A | Standard | Y-II | AS-i | **3RK1400-1DQ00-0AA3** | | 1 | 1 unit | 42C |
| | 2 A | Standard | Standard | AS-i | **3RK1400-1CQ00-0AA3** | | 1 | 1 unit | 42C |
| | 1 A | Standard | Y-II | AS-i | **3RK1400-1DQ01-0AA3** | | 1 | 1 unit | 42C |
| | 1 A | Standard | Standard | AS-i | **3RK1400-1DQ03-0AA3** | | 1 | 1 unit | 42C |
| | 2 A | A/B (spec. V3.0) | Y-II | AS-i | **3RK2400-1DQ00-0AA3** | | 1 | 1 unit | 42C |
| | 2 A | A/B (spec. V3.0) | Y-II | $U_{aux}$ | **3RK2400-1DQ00-1AA3** | | 1 | 1 unit | 42C |
| 4 inputs/ 3 outputs | 2 A | A/B | Y-II | AS-i | **3RK2400-1FQ03-0AA3** | | 1 | 1 unit | 42C |
| 4 inputs/ 2 outputs | 2 A | Standard | Y-II | AS-i | **3RK1400-1MQ00-0AA3** | | 1 | 1 unit | 42C |
| 4 inputs | -- | Standard | Y-II | AS-i | **3RK1200-0CQ00-0AA3** | | 1 | 1 unit | 42C |
| | -- | A/B | Y-II | AS-i | **3RK2200-0CQ00-0AA3** | | 1 | 1 unit | 42C |
| 2 x 2 inputs/ 2 x 2 outputs | 1 A | Standard | Y | AS-i | **3RK1400-1DQ02-0AA3** | | 1 | 1 unit | 42C |
| 4 outputs | 2 A | Standard | Y-II | -- | **3RK1100-1CQ00-0AA3** | | 1 | 1 unit | 42C |
| | 2 A | A/B (spec. V3.0) | Y-II | -- | **3RK2100-1CQ00-0AA3** | | 1 | 1 unit | 42C |

**Digital I/O modules, IP67 - K60 data couplers**

Modules supplied without mounting plate

| Type | Current-carrying capacity of outputs | Slave addressing type | Pin assign-ment | Sensor power supply via | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| Data coupler 4 inputs/4 outputs (virtual) | -- | Standard | -- | -- | **3RK1408-8SQ00-0AA3** | | 1 | 1 unit | 42C |

[1] Module occupies two AS-Interface addresses

For safety modules for AS-Interface, see page 2/27 onwards.

## Accessories

3RK1901-0CA00

**K60 mounting plates**
Suitable for all K60 compact modules

- Wall mounting — **3RK1901-0CA00** — 1 — 1 unit — 42C
- DIN-rail mounting — **3RK1901-0CB01** — 1 — 1 unit — 42C

3RK1901-1KA00

**AS-Interface sealing caps M12**
For free M12 sockets — **3RK1901-1KA00** — 100 — 10 units — 42C

3RK1902-0AR00

**Sealing sets** — **3RK1902-0AR00** — 100 — 5 units — 42D

- For K60 mounting plate
- Cannot be used for K45 mounting plate
- One set contains one straight and one shaped seal



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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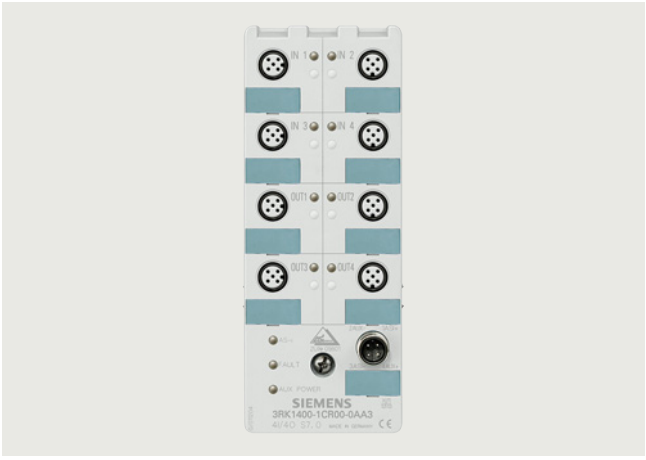
## Overview

### *Operation in particularly harsh environments*




K60R module in degree of protection IP68/IP69 (IP69K)

Modules with degree of protection IP67 cannot be used in areas exposed to permanently high levels of humidity, in applications with drilling emulsions and cutting oils or when cleaning with high-pressure cleaners. The answer for these applications is provided by the expansion of the K60 compact modules with the K60R module with degree of protection IP68/IP69 (IP69K).

The K60R modules are connected instead of the AS-Interface flat cable using a round cable with M12 cable box. The AS-Interface bus cable and the 24 V DC auxiliary power supply are routed in this case in a shared round cable.

Degree of protection IP68 permits many new applications that were impossible with the former field modules with degree of protection IP67. In applications such as filling plants or machine tools, the K60R with degree of protection IP68 enables the module to be used directly in zones exposed to permanent loading by humidity. It is thus possible to make even more rigorous savings in wiring with AS-Interface. For more information on IP68 test conditions, see "IP68/IP69 (IP69K) tests", page 2/48.

Cleaning with high-pressure cleaners, such as is regularly required in the food and beverages industry for instance, is possible without difficulty (IP69).

In applications with cable carriers, many users rely on placing the AS-Interface bus cable in a round cable. With the K60R module, a round cable connection enables direct connection to a round cable. No adapter is required.

### *Mounting*

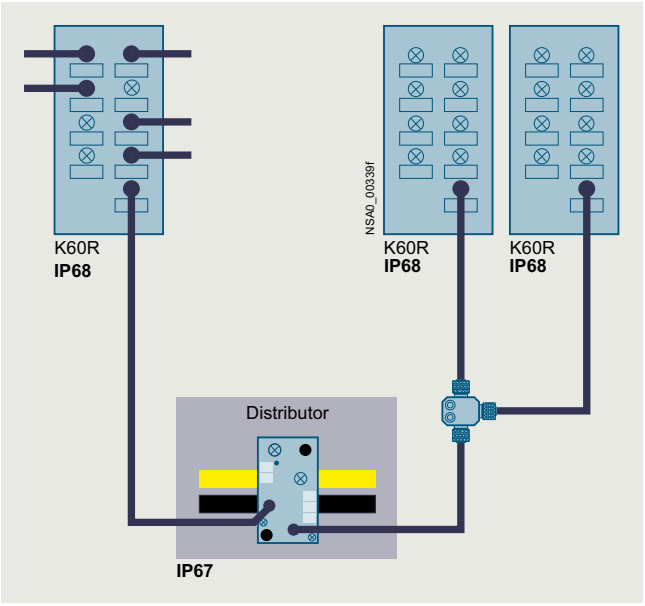
The same mounting plates are used as for the K60 modules. Instead of using flat cables, the K60R is connected using a 4-pole round cable with an M12 connection. With the K60R the mounting plate thus serves only as a fixture and ground terminal.

### *Addressing*

Addressing is performed using the same socket as for the bus connection. Connecting the module to the addressing unit takes place over a 3-pole standard M12 cable.

When the mounting is finished, the module is connected with the addressing cable to the addressing unit and addressed. The addressing cable is then removed and the module connected to the bus cable.

### *Connection*




K60R connection options

In the IP67 environment, the service-proven standard components are connected using flat cables. Spur lines are laid into the IP68 environment by means of an AS-Interface M12 feeder (3RK1901-2NR..). The module is connected with a round cable to an M12 cable box. For this purpose, the module has an M12 bus connection instead of the former addressing socket. The AS-Interface bus cable and the 24 V DC auxiliary voltage are routed together in a 4-pole round cable. There must be no ground conductor in this round cable. Connection to ground is made through the mounting plate.

In the IP68 environment, only cables with extruded M12 plugs may be used.

Please note the following conditions:

- The configuration guidelines for AS-Interface apply. For all M12 connecting cables, the maximum permissible current is limited to 4 A. The cross-section of these cables is just 0.34 $mm^2$. For connection of the K60R modules, the aforementioned M12 connecting cables can be used for the spur lines. The voltage drop caused by the ohmic resistance (approx. 0.11 Ω/m) must be taken into account.
- For round cable connections with shared AS-i and $U_{aux}$ in a single cable, the following maximum lengths apply:
  - Per spur line from feeder to module: max. 5 m
  - Total of all round cable segments in an AS-Interface network: max. 20 m

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***IP68/IP69 (IP69K) tests***

K60R modules were tested with the following tests:

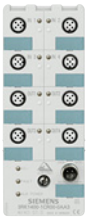
- Stricter test than IP67: 90 min at 1.8 m depth of water (IP67: 30 min at 1 m depth of water)
- Salt water test: Five months in salt water, 20 cm deep, at room temperature
- Test with particularly creepable oil: Five months completely under oil at room temperature
- Test with drilling emulsion: Five months at room temperature (components of the drilling emulsion: Anionic and non-ionic emulsifiers, paraffinic low-aromatic mineral oil, boric acid alkanolamines, corrosion inhibitors, oil content 40%)
- Test in oil bath (Excellence 416 oil) with alternating oil bath temperature: 130 cycles of 15 to 55 °C, two months
- Cleaning with a high-pressure cleaner according to IP69 (IP69K): 80 to 100 bar, 10 to 15 cm distance, time per side > 30 s, water temperature 80 °C

To simulate requirements as realistically as possible, the modules were artificially aged prior to the tests by 15 temperature cycles of -25/+85 °C. During the test, the modules were connected to 3RX1 connecting cables. Unassigned connections were closed with 3RK1901-1KA00 sealing caps.

Note:

Sealing caps and M12 connections must be tightened with the correct torque.

## Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
|  3RK1400-1CR00-0AA3 | **Digital I/O modules, IP68/IP69 - K60R**<br>• 4 inputs/4 outputs<br>• Width 60 mm<br>• IP68/IP69 (IP69K)<br>• Standard assignment<br>• Current-carrying capacity<br>- 200 mA (inputs)<br>- 2 A (outputs)<br>• Slave addressing type: Standard address<br>• Modules supplied without mounting plate | **3RK1400-1CR00-0AA3** | | 1 | 1 unit | 42C |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1901-0CA00 | **K60 mounting plates**<br>Suitable for all K60 and K60R compact modules | | | | | |
| | • Wall mounting | **3RK1901-0CA00** | | 1 | 1 unit | 42C |
| | • DIN-rail mounting | **3RK1901-0CB01** | | 1 | 1 unit | 42C |
| 3RK1901-1KA00 | **AS-Interface sealing caps M12**<br>For free M12 sockets | **3RK1901-1KA00** | | 100 | 10 units | 42C |
| 3RK1901-2NR21 | **AS-Interface M12 feeders, current-carrying capacity up to 4 A** | | | | | |
| | For flat cable: AS-i/$U_{aux}$ — For: M12 socket — Cable length: -- — Cable end in feeder: Not available | **3RK1901-2NR20** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i/$U_{aux}$ — For: M12 cable box — Cable length: 1 m — Cable end in feeder: Not available | **3RK1901-2NR21** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i/$U_{aux}$ — For: M12 cable box — Cable length: 2 m — Cable end in feeder: Not available | **3RK1901-2NR22** | | 1 | 1 unit | 42C |
| 3RK1901-1NR04 | **AS-Interface M12 feeders, 4-fold, current-carrying capacity up to 4 A** | | | | | |
| | For flat cable: AS-i/$U_{aux}$ — For: 4-fold M12 socket, delivery includes mounting plate (for wall and DIN-rail mounting) — Cable length: -- — Cable end in feeder: Not available | **3RK1901-1NR04** | | 1 | 1 unit | 42C |
| 3RK1902-4PB15-3AA0 | **M12 connecting cables**<br>• 3-pole<br>• For addressing AS-i slaves with M12 bus connection<br>• Cable length 1.5 m | **3RK1902-4PB15-3AA0** | | 1 | 1 unit | 42D |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

Compact modules K45

The K45 series of compact modules supplements the large K60 compact modules which have a proven track record in industry. They are the logical consequence for rounding off the bottom end of the existing product range.

The acclaimed advantages of the existing K60 compact modules are fully emulated by the K45 modules. The K45 modules have a substantially smaller basic area and installation depth, however.

Yet in spite of these small dimensions all the modules have large labels and an integrated addressing socket.

Two mounting plates are offered for the K45 compact modules:

- Mounting plate for wall mounting
  This has a hole pattern that is identical to that of the K60 compact modules. This means that K60 compact modules can be mounted together with K45 modules in an aligned arrangement. The shaped cables can be inserted in the recesses of the mounting plates where they cause no hindrance.
- Mounting plate for DIN-rail mounting

***Connection of the AS-Interface shaped cables***

The mounting plate and the compact module are joined together by means of a screw, with simultaneous contacting of the AS-Interface cable by the service-proven insulation piercing method.

Now, mounting the AS-Interface shaped cables is in fact easier than ever. The yellow and black AS-Interface shaped cable can be inserted into the mounting plates from the left or right regardless of the position of the coding lug. The correct polarity of the applied voltages is thus guaranteed.

***Addressing and connection of the sensors/actuators***

Addressing of the K45 compact modules is performed using an addressing socket integrated in the module. The addresses can be assigned even when mounted.

K45 modules with a maximum of four digital inputs and outputs

These compact modules contain up to four M12 standard connections or M8 standard connections for inputs and outputs. Using M12 or M8 standard plugs, a maximum of four sensors and four actuators can be connected to the compact module. Depending on the module, the sockets can be assigned in duplicate.
Pin assignment: Y – i.e. via a socket, two sensors or one sensor/one actuator are connected.

K45 modules with a maximum of eight digital inputs

These modules have eight digital inputs for connection through M12 plugs. The sockets have duplicate assignments. Pin assignment: Y – i.e. via a socket, two sensors or one sensor/one actuator are connected.

The module requires two AS-Interface addresses for processing all eight inputs. The addresses can be assigned through a double addressing socket integrated in the module.

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## Selection and ordering data

3RK1400-0GQ20-0AA3

**Digital I/O modules, IP67 - K45**
- PNP transistor
- Width 45 mm
- Current-carrying capacity of the inputs: 200 mA
- Modules supplied without mounting plate

| Type | Current-carrying capacity of outputs | Slave addressing type | Pin assignment | $U_{aux}$ 24 V | Connection methods | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| 8 inputs[1] | -- | A/B | Y | -- | M12 | **3RK2200-0DQ20-0AA3** | | 1 | 1 unit | 42C |
| 4 inputs | -- | Standard | Standard | -- | M12 | **3RK1200-0CQ20-0AA3** | | 1 | 1 unit | 42C |
| | -- | Standard | Standard | -- | M8 | **3RK1200-0CT20-0AA3** | | 1 | 1 unit | 42C |
| | -- | A/B | Standard | -- | M12 | **3RK2200-0CQ20-0AA3** | | 1 | 1 unit | 42C |
| | -- | A/B | Standard | -- | M8 | **3RK2200-0CT20-0AA3** | | 1 | 1 unit | 42C |
| 2 x 2 inputs | -- | A/B | Y | -- | M12 | **3RK2200-0CQ22-0AA3** | | 1 | 1 unit | 42C |
| 2 inputs/ 2 outputs | 2 A[2] | Standard | Standard | ✓ | M12 | **3RK1400-1BQ20-0AA3** | | 1 | 1 unit | 42C |
| 2 x (1 input/ 1 output) | 0.2 A | Standard | Y | -- | M12 | **3RK1400-0GQ20-0AA3** | | 1 | 1 unit | 42C |
| 4 x (1 input/ 1 output) | 0.2 A | A/B (spec. V3.0) | Y | -- | M12 | **3RK2400-0GQ20-0AA3** | | 1 | 1 unit | 42C |
| | 0.5 A | A/B (spec. V3.0) | Y | ✓ | M12 | **3RK2400-1GQ20-1AA3** | | 1 | 1 unit | 42C |
| 4 outputs | 1 A | A/B (spec. V3.0) | Standard | ✓ | M12 | **3RK2100-1CQ20-0AA3** | | 1 | 1 unit | 42C |
| 3 outputs | 1 A | A/B | Standard | ✓ | M12 | **3RK2100-1EQ20-0AA3** | | 1 | 1 unit | 42C |
| 4 outputs | 1 A | Standard | Standard | ✓ | M12 | **3RK1100-1CQ20-0AA3** | | 1 | 1 unit | 42C |
| 2 outputs/ 2 inputs | 2 A | A/B | Standard | ✓ | M12 | **3RK2400-1BQ20-0AA3** | | 1 | 1 unit | 42C |

✓ Available
-- Not available

[1] Module occupies two AS-Interface addresses
[2] The typical current-carrying capacity per output increases with version "E12" from 1.5 to 2 A (available since approx. 07/2003).

For safety modules for AS-Interface, see page 2/27 onwards.

## Accessories

3RK1901-2EA00

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **K45 mounting plates** | | | | | |
| • For wall mounting | **3RK1901-2EA00** | | 1 | 1 unit | 42C |
| • For DIN-rail mounting | **3RK1901-2DA00** | | 1 | 1 unit | 42C |

3RK1901-1MN00

| | | | | | |
|---|---|---|---|---|---|
| **Cable end terminator**<br>For sealing open cable ends of the AS-Interface shaped cable with IP67 | **3RK1901-1MN00** | | 1 | 10 units | 42C |

3RK1901-1KA00

| | | | | | |
|---|---|---|---|---|---|
| **AS-Interface sealing caps** | | | | | |
| • For free M12 sockets | **3RK1901-1KA00** | | 100 | 10 units | 42C |
| • For free M8 sockets | **3RK1901-1PN00** | | 100 | 10 units | 42C |

3RK1901-1PN00

* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

Digital I/O modules, IP67 - K20

The K20 compact module series rounds off the AS-Interface compact modules with a particularly slim design and only 20-mm width. Thanks to its extremely compact dimensions, these modules are particularly suited for handling machine applications in the field of production engineering where modules need to be arranged in the smallest of spaces.

Robotics is yet another application area. The K20 modules are connected to the AS-Interface with a round cable with M12 cable box instead of with the AS-Interface flat cable. The AS-Interface bus cable and the 24 V DC auxiliary energy are routed in this case in a shared round cable. This enables extremely compact installation.

The flexibility of the round cable means that it can also be used on moving machine parts without any problems. The K20 modules are also ideal for such applications as their non-encapsulated design makes them particularly light in weight.

In applications with cable carriers, many users rely on placing the AS-Interface bus cable in a round cable. In this case, the K20 modules support direct connection to the round cable. No flat to round cable adapter is required.

The K20 compact module range includes standard AS-Interface modules, as well as an ASIsafe version for the connection of safety-related sensors, such as EMERGENCY STOP pushbuttons or protective door monitoring.

For particularly space-saving dimensions, the sensors and actuators are connected over M8 plug-in connectors. Alternatively, M12 connectors with Y-assignment can be used.

## Selection and ordering data

3RK2200-0CT30-0AA3

| Version | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Digital I/O modules, IP67 - K20** | | | | | | | | | |
| Width 20 mm | | | | | | | | | |
| Type | Current-carrying capacity of outputs | Slave addressing type | Pin assignment | Connection methods | | | | | |
| 4 inputs | -- | A/B | Standard | M8 | **3RK2200-0CT30-0AA3** | | 1 | 1 unit | 42C |
| | -- | A/B | Y | M12 | **3RK2200-0CQ30-0AA3** | | 1 | 1 unit | 42C |
| 2 inputs/ 2 outputs | 1 | A/B | Standard | M8 | **3RK2400-1BT30-0AA3** | | 1 | 1 unit | 42C |
| | 1 | A/B | Y | M12 | **3RK2400-1BQ30-0AA3** | | 1 | 1 unit | 42C |
| 4 outputs | 1 | A/B (spec. V3.0) | Standard | M8 | **3RK2100-1CT30-0AA3** | | 1 | 1 unit | 42C |
| 4 inputs/ 4 outputs | 1 | Standard | Standard | M8 | **3RK1400-1CT30-0AA3** | | 1 | 1 unit | 42C |
| | 1 | A/B (spec. V3.0) | Standard | M8 | **3RK2400-1CT30-0AA3** | | 1 | 1 unit | 42C |
| 2 safe inputs | -- | Standard | Y-II | M12 | **3RK1205-0BQ30-0AA3** | | 1 | 1 unit | 42C |

For safety modules for AS-Interface, see page 2/27 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1901-1KA00 | **AS-Interface sealing caps** | | | | | |
| | • For free M12 sockets | **3RK1901-1KA00** | | 100 | 10 units | 42C |
| 3RK1901-1PN00 | • For free M8 sockets | **3RK1901-1PN00** | | 100 | 10 units | 42C |
| 3RK1901-2NN10 | **AS-Interface compact distributors, for AS-Interface flat cable AS-i or $U_{aux}$** | | | 1 | 1 unit | 42C |
| | • Current-carrying capacity up to 8 A | | | | | |
| | • Degree of protection IP67/IP68/IP69 (IP69K) | | | | | |
| | For flat cable: AS-i or $U_{aux}$ / For: Flat ribbon cable AS-i or $U_{aux}$ / Cable length: -- / Cable end in feeder: Not available | **3RK1901-2NN10** | | 1 | 1 unit | 42C |
| 3RX9801-0AA00 | **AS-Interface M12 feeders** | | | | | |
| | • Current-carrying capacity up to 2 A | | | | | |
| | • Degree of protection IP67 | | | | | |
| | For flat cable: AS-i / For: M12 socket / Cable length: -- / Cable end in feeder: Available | **3RX9801-0AA00** | | 1 | 1 unit | 42C |
| 3RK1901-2NR10 | **AS-Interface M12 feeders** | | | | | |
| | • Current-carrying capacity up to 4 A | | | | | |
| | • Degree of protection IP67/IP68/IP69 (IP69K) | | | | | |
| | For flat cable: AS-i / For: M12 socket / Cable length: -- / Cable end in feeder: Not available | **3RK1901-2NR10** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i / For: M12 cable box / Cable length: 1 m / Cable end in feeder: Not available | **3RK1901-2NR11** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i / For: M12 cable box / Cable length: 2 m / Cable end in feeder: Not available | **3RK1901-2NR12** | | 1 | 1 unit | 42C |
| 3RK1901-2NR21 | For flat cable: AS-i/$U_{aux}$ / For: M12 socket / Cable length: -- / Cable end in feeder: Not available | **3RK1901-2NR20** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i/$U_{aux}$ / For: M12 cable box / Cable length: 1 m / Cable end in feeder: Not available | **3RK1901-2NR21** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i/$U_{aux}$ / For: M12 cable box / Cable length: 2 m / Cable end in feeder: Not available | **3RK1901-2NR22** | | 1 | 1 unit | 42C |
| 3RK1901-1NR04 | **AS-Interface M12 feeders, 4-fold** | | | | | |
| | • Current-carrying capacity up to 4 A | | | | | |
| | • Degree of protection IP67 | | | | | |
| | For flat cable: AS-i/$U_{aux}$ / For: 4-fold M12 socket, delivery includes mounting plate (for wall and DIN-rail mounting) / Cable length: -- / Cable end in feeder: Not available | **3RK1901-1NR04** | | 1 | 1 unit | 42C |
| 6ES7194-1KA01-0XA0 | **M12 Y-shaped coupler plugs**<br>For connection of two sensors to one M12 socket with Y-assignment | **6ES7194-1KA01-0XA0** | | 1 | 1 unit | 250 |
| 3RK1902-4PB15-3AA0 | **M12 connecting cables**<br>• 3-pole<br>• For addressing AS-i slaves with M12 bus connection<br>• Cable length 1.5 m | **3RK1902-4PB15-3AA0** | | 1 | 1 unit | 42D |

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Overview

K60 analog compact module

**More information**

Manual for AS-Interface analog modules, see https://support.industry.siemens.com/cs/ww/en/view/7643815

AS-Interface analog modules from the K60 compact series detect or issue analog signals locally. These modules are linked to the higher-level controller through an AS-Interface master according to specification V2.1 or specification V3.0.

The analog modules are divided into the following groups:

- Input modules for
  - Current measurement
  - Voltage measurement
  - Thermal resistance measurement
- Output modules for
  - Current actuators
  - Voltage actuators

The input modules according to profile 7.3/7.4 are available with two or four input channels. It is possible in addition to convert the 2-channel module to using only one input channel, thus enabling very short times before the analog value is available. The conversion is effected by means of a jumper plug at socket 3. The transmission times achieved with analog modules according to profile 7.A.9 are twice as fast as those achieved with profile 7.3/7.4. Operation is adjustable in this case, e.g. it is possible to choose with the ID1 code whether the module is operated with 1 or 2 channels.

The output modules are configured as 2-channel modules as standard.

The input and output channels are electrically separated from the AS-Interface network. If sensors with a higher power requirement are to be connected, more power can be supplied through the auxiliary voltage as an alternative to the internal supply.

In the manual (see "More information"), the modules are presented in great detail along with their technical specifications and in-depth notes on operation. Sample function blocks round off the manual.

## Benefits

- Analog modules are just as easy to integrate in AS-Interface as digital modules
- Analog values can be easily detected and issued locally
- Preprocessing of the analog value transfer in the master enables rapid evaluation of the analog values
- Up to four values can be detected using one analog module
- Faster transmission and conversion of analog values thanks to the new option for switching to single-channel operation

In addition, specification V3.0 now also offers:

- A/B technology, now also with analog modules
- On average, double fast transmission times (only 3 or 4 cycles, depending on the resolution selected)
- Variable adjustable mode: 12-bit or 14-bit resolution, 1-channel or 2-channel, selectable via the ID1 code

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## Selection and ordering data

3RK1207-1BQ44-0AA3

3RK2207-2BQ50-0AA3

| Version | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Analog I/O modules, IP67 - K60, analog profile 7.3**<br>• Slave addressing type: Standard address<br>• Width 60 mm<br>• Modules supplied without mounting plate | | | | | | | |
| Inputs | Type | Measuring range | | | | | |
| 1 or 2 inputs (selectable using jumper plug at socket 3) | Current | 4 ... 20 mA or ±20 mA (selectable)[1] | **3RK1207-1BQ40-0AA3** | | 1 | 1 unit | 42C |
| | Voltage | ±10 V or 1 ... 5 V (selectable) | **3RK1207-2BQ40-0AA3** | | 1 | 1 unit | 42C |
| | Thermal resistance | Pt100 or Ni100 or 0 ... 600 Ω (selectable)[1] | **3RK1207-3BQ40-0AA3** | | 1 | 1 unit | 42C |
| 4 inputs | Current | 4 ... 20 mA or ±20 mA (selectable) | **3RK1207-1BQ44-0AA3** | | 1 | 1 unit | 42C |
| | Voltage | ±10 V or 1 ... 5 V (selectable) | **3RK1207-2BQ44-0AA3** | | 1 | 1 unit | 42C |
| | Thermal resistance | Pt100 or Ni100 or 0 ... 600 Ω (selectable) | **3RK1207-3BQ44-0AA3** | | 1 | 1 unit | 42C |
| Outputs | Type | Output range | | | | | |
| 2 outputs | Current for two-wire actuators | 4 ... 20 mA or ±20 mA or 0 ... 20 mA (selectable)[1] | **3RK1107-1BQ40-0AA3** | | 1 | 1 unit | 42C |
| | Voltage for two-wire actuators | ±10 V or 0 ... 10 V or 1 ... 5 V (selectable) | **3RK1107-2BQ40-0AA3** | | 1 | 1 unit | 42C |
| **Analog I/O modules, IP67 - K60, analog profile 7.A.9**<br>• Slave addressing type: A/B (spec. V3.0)<br>• Width 60 mm<br>• Modules supplied without mounting plate | | | | | | | |
| Inputs | Type | Measuring range | | | | | |
| 1 or 2 inputs (variably adjustable) | Current | 4 ... 20 mA or ±20 mA (selectable) | **3RK2207-1BQ50-0AA3** | | 1 | 1 unit | 42C |
| | Voltage | ±10 V or 1 ... 5 V (selectable) | **3RK2207-2BQ50-0AA3** | | 1 | 1 unit | 42C |

[1] Some modules are available in the extended temperature range (from -25 to +70 °C) and for use in harsh environmental conditions (coated according to environment standard IEC 60721).

| Description | SIPLUS article number | Corresponds to module |
|---|---|---|
| SIPLUS AS-Interface 2AA, IP67 | 6AG1107-1BQ40-7AA3 | 3RK1107-1BQ40-0AA3 |
| SIPLUS AS-Interface 2AI, IP67 | 6AG1207-1BQ40-7AA3 | 3RK1207-1BQ40-0AA3 |
| SIPLUS AS-Interface 2AI, IP67 | 6AG1207-3BQ40-7AA3 | 3RK1207-3BQ40-0AA3 |

For more information, see www.siemens.com/siplus-extreme.

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## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1901-0CA00 | **K60 mounting plates** | | | | | |
| | • Wall mounting | **3RK1901-0CA00** | | 1 | 1 unit | 42C |
| | • DIN-rail mounting | **3RK1901-0CB01** | | 1 | 1 unit | 42C |
| 3RK1901-1KA00 | **M12 sealing caps** | **3RK1901-1KA00** | | 100 | 10 units | 42C |
| 3RK1902-0AR00 | **Sealing sets**<br>• For K60 mounting plate<br>• Cannot be used for K45 mounting plate<br>• One set contains one straight and one shaped seal | **3RK1902-0AR00** | | 100 | 5 units | 42D |
| 3RK1901-1AA00 | **Jumper plugs**<br>For changing over the 2-channel input modules | **3RK1901-1AA00** | | 1 | 1 unit | 42C |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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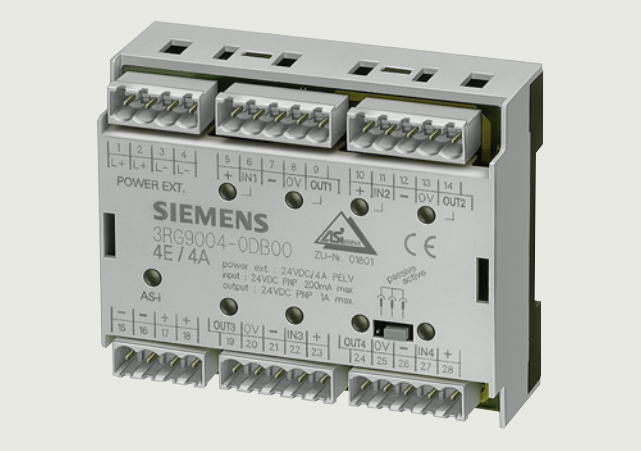
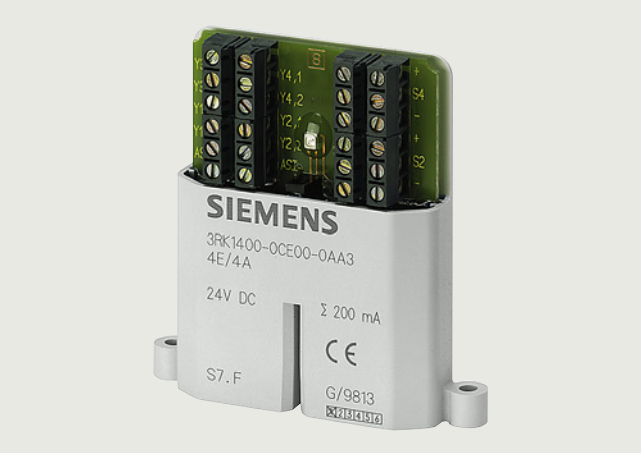
## Overview

SlimLine Compact modules SC17.5F, SC17.5 and SC22.5




F90 module




Flat module

For AS-Interface applications inside control cabinets, there are various module series for the most diverse requirements:

- SlimLine Compact – particularly slim design ideal for space-saving use in the control cabinet
- F90 module – particularly flat design for flat control boxes
- Flat module – special design for integration into customer-specific solutions

The existing SlimLine series of modules S22.5 and S45 are being replaced by the innovative new devices in the SlimLine Compact SC17.5, SC17.5F and SC22.5 series. The previous SlimLine modules are still available as replacements for existing systems.

### *Available versions*

The following table provides an overview of the key features of the different series of control cabinet modules.

| Feature | SlimLine Compact | F90 module | Flat module |
|---|---|---|---|
| Digital I/O | ✓ | ✓ | ✓ |
| Analog I/O | ✓ | -- | -- |
| Safe inputs | ✓ | -- | -- |
| Relay outputs | ✓ | -- | -- |
| Addressing type A/B address | ✓ | -- | -- |
| Mounting on TH 35 DIN rail according to IEC 60715 | ✓ | ✓ | -- |
| Wall mounting using push-in lugs | ✓ | -- | -- |
| Integrated lugs for screw fixing | -- | -- | ✓ |
| Width in mm | 17.5 or 22.5 | 90 | 80 |

✓ Available
-- Not available

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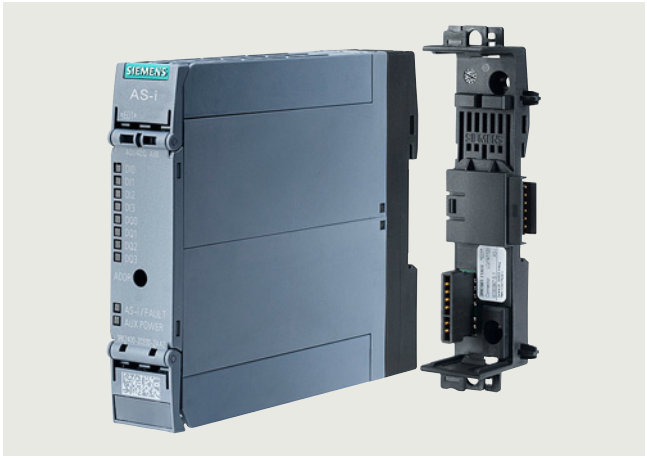
## Overview

***SlimLine Compact modules***

SC17.5 and SC22.5 SlimLine Compact modules with screw terminals



SC22.5 SlimLine Compact module with connector with screw terminals

The AS-Interface module series for the control cabinet SlimLine Compact with degree of protection IP20 creates space in the cabinet and in distributed local control boxes. A width of just 17.5 mm or 22.5 mm ensures considerable space savings in the control cabinet.

The SlimLine Compact module series comprises not only digital and analog I/O modules but also ASIsafe modules with safe inputs. Digital outputs are available as solid-state and relay outputs.

Sensors and actuators, as well as the AS-Interface bus cable, are connected by means of removable screw or push-in spring-loaded terminals. Device connectors available as accessories offer the possibility of looping through the AS-Interface bus cable and the 24 V DC power supply $U_{aux}$ from one module to additional modules. This significantly simplifies the wiring, as the AS-Interface bus cable and $U_{aux}$ only have to be connected to one device.

All devices for the connection of three-wire sensors offer the option of supplying the sensors either from the AS-Interface bus cable or alternatively from the 24 V DC voltage supply $U_{aux}$ depending on the requirements of the particular application. A slide switch is used to make the selection. If supply via $U_{aux}$ is selected, the wiring of the sensor terminals remains unchanged. This means that no external supply is required for the sensors.

All modules have LEDs on the front that provide diagnostics information and indicate the status of the module inputs and outputs. Devices with semiconductor outputs indicate the status of each output by means of a dual LED. Thus the status (on/off/overload) is displayed for each output. An addressing socket integrated at the front enables the module to be addressed also when it is installed. Integrated adapters permit mounting on a DIN rail – either directly for the module or for the device connector. Alternatively, the modules can also be screw-mounted using push-in lugs (accessories). These lugs for screw fastening must be ordered separately.

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## Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42C

**More information**

Equipment Manual, see
https://support.industry.siemens.com/cs/ww/en/view/109481489

**For multi-unit packaging, see page 16/7.**

| Version I/O type | Width mm | Inputs | Outputs | Screw terminals Article No. | Screw terminals Price per PU | Spring-loaded terminals (push-in) Article No. | Spring-loaded terminals (push-in) Price per PU |
|---|---|---|---|---|---|---|---|
| **SC17.5 and SC22.5 digital SlimLine Compact modules** | | | | | | | |
| ***Slave addressing type: A/B address*** | | | | | | | |
| 4 inputs | 17.5 | Two-wire | -- | **3RK2200-0CE00-2AA2** | | **3RK2200-0CG00-2AA2** | |
| | 22.5 | Three-wire | -- | **3RK2200-2CE00-2AA2** | | **3RK2200-2CG00-2AA2** | |
| 4 outputs | 22.5 | -- | 2A semiconductor | **3RK2100-1CE00-2AA2** | | **3RK2100-1CG00-2AA2** | |
| 4 inputs/ 2 outputs, relays | 22.5 | Three-wire | Relay (change-over contact) | **3RK2402-2ME00-2AA2** | | **3RK2402-2MG00-2AA2** | |
| 4 inputs/ 4 outputs, relays | 22.5 | Three-wire | Relay (NO contacts) | **3RK2402-2CE00-2AA2** | | **3RK2402-2CG00-2AA2** | |
| 4 inputs/ 4 outputs | 22.5 | Three-wire | 2A semiconductor | **3RK2400-2CE00-2AA2** | | **3RK2400-2CG00-2AA2** | |
| ***Slave addressing type: Standard address*** | | | | | | | |
| 4 inputs/ 4 outputs | 22.5 | Three-wire | 2A semiconductor | **3RK1400-2CE00-2AA2** | | **3RK1400-2CG00-2AA2** | |
| **SC22.5 analog SlimLine Compact modules** | | | | | | | |
| ***Slave addressing type: Standard address*** | | | | | | | |
| 4 inputs | 22.5 | Voltage/ current selectable (1 ... 5 V, ±10 V, 4 ... 20 mA, ±20 mA) | -- | **3RK1207-0CE00-2AA2** | | **3RK1207-0CG00-2AA2** | |
| | | Thermal resistance (Pt100, Ni100, 0 ... 600 Ω) | -- | **3RK1207-3CE00-2AA2** | | **3RK1207-3CG00-2AA2** | |
| 2 outputs | 22.5 | -- | Voltage/ current selectable (0 ... 10 V, 1 ... 5 V, ±10 V, 0 ... 20 mA, 4 ... 20 mA, ±20 mA) | **3RK1107-0BE00-2AA2** | | **3RK1107-0BG00-2AA2** | |
| **SC17.5F ASIsafe SlimLine Compact modules** | | | | | | | |
| ***Slave addressing type: Standard address*** | | | | | | | |
| 2 safe inputs | 17.5 | For mechanical contacts | -- | **3RK1205-0BE00-2AA2** | | **3RK1205-0BG00-2AA2** | |
| 2 safe inputs/ 2 standard outputs | 17.5 | For mechanical contacts | Semiconductor $U_{ASI}/U_{aux}$ supply selectable | **3RK1405-2BE00-2AA2** | | **3RK1405-2BG00-2AA2** | |

3RK2200-0CG00-2AA2

3RK2400-2CG00-2AA2

3RK1207-0CG00-2AA2

3RK1405-2BE00-2AA2

For safety modules for AS-Interface, see page 2/27 onwards.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

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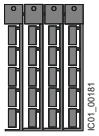
## Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| 3RK1901-1YA00 3RK1901-1YA10 | | | | | |
| **Device connectors** | | | | | |
| For electrical connection of SlimLine Compact modules (connects AS-i bus cable and 24 V DC auxiliary power supply $U_{aux}$ when using several SlimLine Compact modules) | | | | | |
| • Width 17.5 mm | **3RK1901-1YA00** | | 1 | 1 unit | 42C |
| • Width 22.5 mm | **3RK1901-1YA10** | | 1 | 1 unit | 42C |
| 3RK1901-1YA01 3RK1901-1YA11 | | | | | |
| **Device termination connectors** | | | | | |
| Required for the last module in the network | | | | | |
| • Width 17.5 mm | **3RK1901-1YA01** | | 1 | 1 unit | 42C |
| • Width 22.5 mm | **3RK1901-1YA11** | | 1 | 1 unit | 42C |
| 3ZY1121-2BA00 | | | | | |
| **Removable terminals** | **Screw terminals** | | | | |
| • Screw terminals up to 2 x 1.5 mm² or 1 x 2.5 mm² | | | | | |
| - 2-pole | **3ZY1121-1BA00** | | 1 | 6 units | 41L |
| - 4-pole | **3ZY1141-1BA00** | | 1 | 6 units | 41L |
| | **Spring-loaded terminals (push-in)** | | | | |
| • Push-in terminals up to 2 x 1.5 mm² | | | | | |
| - 2-pole | **3ZY1121-2BA00** | | 1 | 6 units | 41L |
| - 4-pole | **3ZY1141-2BA00** | | 1 | 6 units | 41L |
| 3ZY1450-1BA00 3ZY1450-1AB00 | | | | | |
| **Hinged cover** | | | | | |
| Replacement for SlimLine Compact module, without terminal labeling | | | | | |
| • Width 17.5 mm | | | | | |
| - Titanium gray for SC17.5 | **3ZY1450-1AA00** | | 1 | 5 units | 41L |
| - Yellow for SC17.5F | **3ZY1450-1BA00** | | 1 | 5 units | 41L |
| • Width 22.5 mm | | | | | |
| - Titanium gray for SC22.5 | **3ZY1450-1AB00** | | 1 | 5 units | 41L |
| 3ZY1311-0AA00 | | | | | |
| **Push-in lugs for wall mounting** | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| Two lugs are required per device | | | | | |
| 3ZY1440-1AA00 | | | | | |
| **Coding pins for removable terminals** | **3ZY1440-1AA00** | | 1 | 12 units | 41L |
| For mechanical coding of the terminals | | | | | |
|  3RT2900-1SB20 | | | | | |
| **Blank labels** | | | | | |
| Unit labeling plates[1] | | | | | |
| • 10 mm x 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| • 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| 3RA2908-1A | | | | | |
| **Tools for opening spring-loaded terminals** | **Spring-loaded terminals** | | | | |
| Screwdriver for SIRIUS devices with spring-loaded terminals | **3RA2908-1A** | | 1 | 1 unit | 41B |
| 3.0 mm x 0.5 mm, length approx. 200 mm, titanium gray/black, partially insulated | | | | | |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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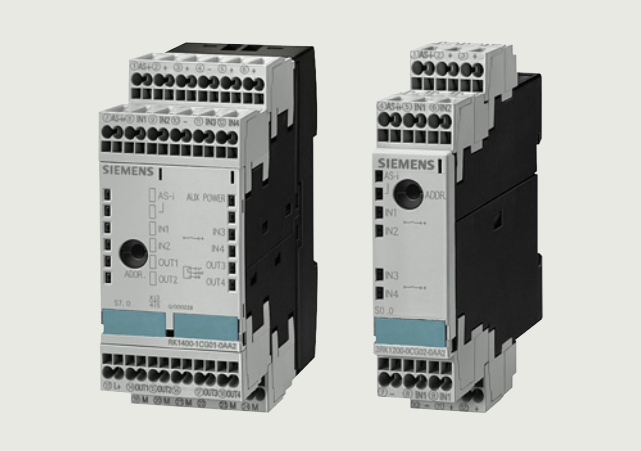
## More information



SlimLine S45 modules (picture on left) and S22.5 module (picture on right) with spring-loaded terminals

The existing SlimLine series of I/O modules for use in the control cabinet is being replaced by the new, innovative SlimLine Compact series. We recommend that these new devices are used in future.

The code conversion table indicates the best options for replacing the existing SlimLine devices with SlimLine Compact devices.

Note:

The previous SlimLine devices are still available for use as replacements in existing systems. As a result of the innovation, the new SlimLine Compact devices are not fully compatible in terms of either mechanical dimensions or electrical properties.

The code conversion table below links the existing S22.5, S22.5F and S45 SlimLine modules with the new SC17.5, SC17.5F and SC22.5 SlimLine Compact devices.

### *Code conversion table*

| **S22.5, S22.5F and S45 SlimLine** | | | **Comparison type: SC17.5, SC17.5F and SC22.5 SlimLine Compact** | | |
|---|---|---|---|---|---|
| Screw terminals | Spring-loaded terminals | Version | Screw terminals | Spring-loaded terminals | Version |
| 3RK1200-0CE00-0AA2 | 3RK1200-0CG00-0AA2 | 4 DI, two-wire, standard address | 3RK2200-0CE00-2AA2 | 3RK2200-0CG00-2AA2 | 4 DI, two-wire, A/B address |
| 3RK2200-0CE02-0AA2 | 3RK2200-0CG02-0AA2 | 4 DI, A/B address | 3RK2200-2CE00-2AA2 | 3RK2200-2CG00-2AA2 | 4 DI, A/B address |
| 3RK1200-0CE02-0AA2 | 3RK1200-0CG02-0AA2 | 4 DI, standard address | | | |
| 3RK1400-0BE00-0AA2 | 3RK1400-0BG00-0AA2 | 2 DI/2 DQ, standard address | 3RK1400-2CE00-2AA2 | 3RK1400-2CG00-2AA2 | 4 DI/4 DQ, standard address |
| 3RK1402-0BE00-0AA2 | 3RK1402-0BG00-0AA2 | 2 DI/2 DQ relay, standard address | 3RK2402-2ME00-2AA2 | 3RK2402-2MG00-2AA2 | 4 DI/2 DQ relay, A/B address |
| 3RK1100-1CE00-0AA2 | 3RK1100-1CG00-0AA2 | 4 DQ, standard address | 3RK2100-1CE00-2AA2 | 3RK2100-1CG00-2AA2 | 4 DQ, A/B address |
| 3RK2400-1CE01-0AA2 | 3RK2400-1CG01-0AA2 | 4 DI/4 DQ, A/B address | 3RK2400-2CE00-2AA2 | 3RK2400-2CG00-2AA2 | 4 DI/4 DQ, A/B address |
| 3RK2400-1FE00-0AA2 | 3RK2400-1FG00-0AA2 | 4 DI/3 DQ, A/B address | | | |
| 3RK1400-1CE00-0AA2 | 3RK1400-1CG00-0AA2 | 4 DI/4 DQ, 1A semiconductor, standard address | 3RK1400-2CE00-2AA2 | 3RK1400-2CG00-2AA2 | 4 DI/4 DQ, 2A semiconductor, standard address |
| 3RK1400-1CE01-0AA2 | 3RK1400-1CG01-0AA2 | 4 DI/4 DQ, 2A semiconductor, standard address | | | |
| 3RK1402-3CE01-0AA2 | 3RK1402-3CG01-0AA2 | 4 DI/4 DQ (sensor supply from $U_{aux}$), standard address | | | |
| 3RK1402-3CE00-0AA2 | 3RK1402-3CG00-0AA2 | 4 DI/4 DQ relay, standard address | 3RK2402-2CE00-2AA2 | 3RK2402-2CG00-2AA2 | 4 DI/4 DQ relay, A/B address |
| 3RK1205-0BE00-0AA2 | 3RK1205-0BG00-0AA2 | 2 F-DI, standard address | 3RK1205-0BE00-2AA2 | 3RK1205-0BG00-2AA2 | 2 F-DI, standard address |
| 3RK1405-0BE00-0AA2 | 3RK1405-0BG00-0AA2 | 2 F-DI/2 DQ, standard address (outputs supplied from $U_{ASI}$) | 3RK1405-2BE00-2AA2 | 3RK1405-2BG00-2AA2 | 2 F-DI/2 DQ, standard address (supply $U_{ASI}$/$U_{aux}$ selectable) |
| 3RK1405-1BE00-0AA2 | 3RK1405-1BG00-0AA2 | 2 F-DI/2 DQ, standard address (outputs supplied from $U_{aux}$) | | | |

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## Selection and ordering data

3RG9002-0DB00

**F90 module**
- Slave addressing type: Standard address
- Width 90 mm
- With COMBICON version: Delivery without COMBICON plug

| Version | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| Type | Connection | Inputs | Outputs | | | | | |
| 4 inputs/ 4 outputs | Screw | Two and three-wire PNP transistor | PNP transistor 1 A | **3RG9002-0DB00** | | 1 | 1 unit | 42C |
| | | Two and three-wire PNP transistor | PNP transistor 2 A | **3RG9002-0DA00** | | 1 | 1 unit | 42C |
| | | Two and three-wire PNP transistor floating | PNP transistor 2 A | **3RG9002-0DC00** | | 1 | 1 unit | 42C |
| | COMBICON[1] | Two and three-wire PNP transistor | PNP transistor 1 A | **3RG9004-0DB00** | | 1 | 1 unit | 42C |
| | | Two and three-wire PNP transistor | PNP transistor 2 A | **3RG9004-0DA00** | | 1 | 1 unit | 42C |
| | | Two and three-wire PNP transistor floating | PNP transistor 2 A | **3RG9004-0DC00** | | 1 | 1 unit | 42C |

[1] Scope of supply does not include COMBICON connector set 3RX9810-0AA00, this must be ordered separately, see "Accessories".

## Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **COMBICON connector sets**<br>For 4I/4O modules with COMBICON connection; one set comprises:<br>• 4 x 5-pole plug for connection<br>• Standard sensors/actuators<br>• 2 x 4-pole plug for AS-Interface and external auxiliary voltage | **3RX9810-0AA00** | | 1 | 1 unit | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

Flat module 4I/4O

The flat module for the control cabinet in degree of protection IP20 has four inputs and four outputs.

The module is fitted at the front with an LED which indicates the module's status.

With the integrated lugs, the modules can be screwed on.

An integrated addressing socket enables the module to be addressed when it is installed.

Standard sensors/actuators and the AS-Interface cable can be connected using screw terminals.

## Selection and ordering data

| | Version | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| | | Article No. / Price per PU | | | |
| 3RK1400-0CE00-0AA3 | **Flat module 4I/4O**<br>Slave addressing type: Standard address<br>• 4 inputs/4 outputs<br>• 200 mA for all I/Os | **3RK1400-0CE00-0AA3** | 1 | 1 unit | 42C |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

Counter module with spring-loaded terminals

The counter module is used to send hexadecimally coded count values (LSB=D0, MSB=D3) to a higher-level controller. The count value is increased by 1 for each valid count pulse at terminal 8. Beginning at 0, the module counts up to 15 and then begins again at 0. The controller adopts the current value and determines the number of pulses between two host invocations through subtraction from the previous value. The total number of count pulses is determined by adding these differences.

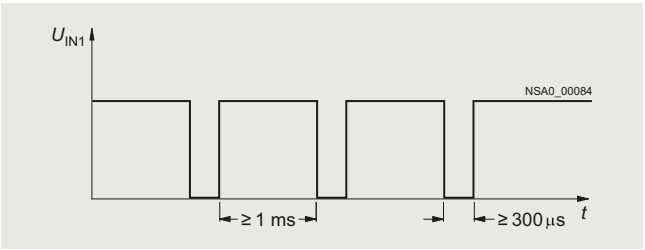
For the values sent to be unambiguous, no more than 15 count values are allowed between two host invocations or AS-Interface master invocations at terminal 8. The maximum permissible transmission frequency is calculated from these times:

$f_{Trmax} = 15/T_{max}$

$T_{max}$: max. possible transmission time from the slave to the host

A further condition for the maximum frequency is the required pulse shape. For the counter to accept a pulse as valid, a Low must have been applied at the input for at least 300 µs and a High for at least 1 ms.

This results in a maximum frequency of $f_{Zmax}$ = 1/1.3 ms = 769 Hz independently of the control system (see figure below).



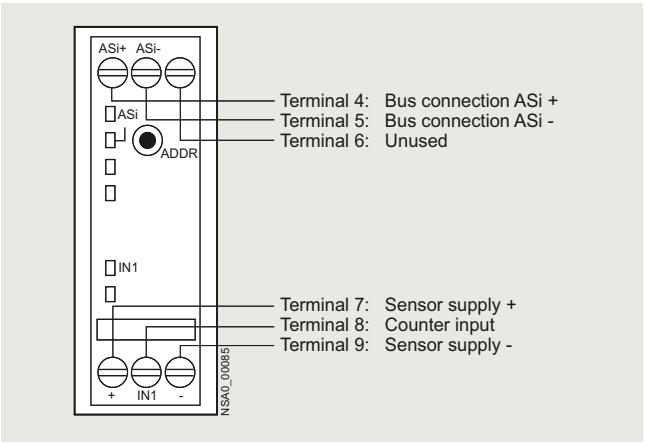

Maximum frequency for the counter module

If the time criterion stipulated in the figure is violated, the count value is rejected.

The counter is active only for the reset parameter P2 (default). The counter is deleted when P2 is set, and the incoming count pulses are not registered until after P2 is reset again.

Note:

A customized function block is necessary or must be programmed.




Counter module connection options

## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Counter modules** | | | | | |
| Slave addressing type: Standard address | | | | | |
| Width 22.5 mm | | | | | |
| • With screw terminals | **3RK1200-0CE03-0AA2** | | 1 | 1 unit | 42C |
| • With spring-loaded terminals | **3RK1200-0CG03-0AA2** | | 1 | 1 unit | 42C |

3RK1200-0CG03-0AA2



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

Ground-fault detection module with spring-loaded terminals

*"Ground faults in any control circuit must not lead to unintentional starting or potentially hazardous movements or prevent the machine from stopping." (IEC 60204-1/VDE 0113-1).*

The AS-Interface ground-fault detection module is used to meet these requirements. Using this module from the SlimLine series, ground faults in AS-Interface systems can be reliably detected and reported.

The following ground faults are detected:

- Ground fault from AS-i "+" to ground
- Ground fault from AS-i "-" to ground
- Ground fault on sensors and actuators that are supplied from the AS-Interface voltage.

Note:

Not suitable for AS-i Power24V.

Check whether the AS-i power supply unit or the AS-i master module, etc. features integrated ground-fault detection, and therefore whether a separate ground fault detection module can be omitted.

It should be noted that an AS-i cable segment behind an AS-i repeater requires its own ground-fault monitoring.

## Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1408-8KG00-0AA2 | **Ground-fault detection modules**<br>Module does not require an AS-i address<br>Width 22.5 mm | | | | | |
| | • With screw terminals | **3RK1408-8KE00-0AA2** | | 1 | 1 unit | 42C |
| | • With spring-loaded terminals | **3RK1408-8KG00-0AA2** | | 1 | 1 unit | 42C |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

AS-Interface overvoltage protection module

The AS-Interface overvoltage protection module (protection module) protects downstream AS-Interface devices or individual sections in AS-i networks from conducted overvoltages which can be caused by switching operations and remote lightning strikes. The location of the protection module forms the transition from zone 1 to 2/3 within the lightning protection zone concept. Direct lightning strikes must be coped with using additional protective measures at the transitions from lightning protection zone 0A to 1.

With the AS-Interface overvoltage protection module, it is now also possible to integrate AS-Interface in the overall overvoltage protection concept of a plant or machine.

The module has the same design and degree of protection (IP67) as the AS-Interface K45 compact modules. It is a passive module and as such does not need its own address on the AS-Interface network. The module can be used to protect the AS-Interface cable and the cable for the auxiliary voltage from overvoltage. Overvoltages are discharged through a ground cable with a green/yellow oil-proof outer sheath. This cable is fixed in the module and must be connected with low resistance to the system's ground.

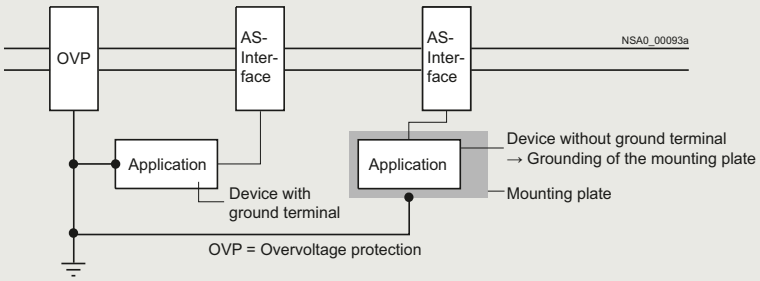
### *Rated discharge current $I_{sn}$*

The rated discharge current is the peak value of a surge current of the form 8/20 µs (microseconds), for which the protection module is designed in accordance with a specified test program. With an 8/20 waveform, 100% of the value is achieved after 8 µs and 50% after 20 µs.

### *Protection level $U_p$*

The protection level of a protection module is the highest momentary value of the voltage at the terminals, established in individual tests and characterizes the capability of a protection module to limit overvoltages to a residual level.

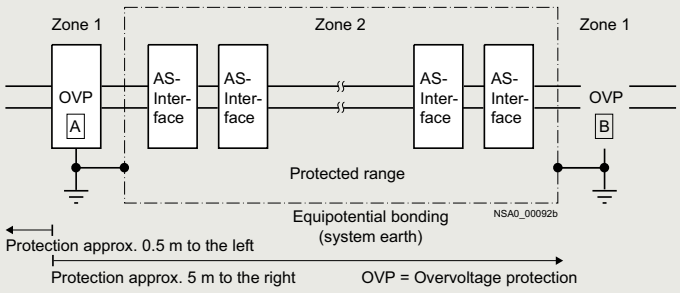
### *Configuration guidelines*




The grounding of protection modules and the units to be protected must be effected through a shared grounding point.

If insulated devices are protected, their mounts must be included in the grounding points.

### *Sample application*




## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **AS-Interface overvoltage protection module**<br>Module does not require an AS-i address<br>Delivery includes mounting plate (for wall and DIN-rail mounting) | **3RK1901-1GA01** | | 1 | 1 unit | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

AS-Interface power supply unit for 3 A

**More information**

Operating Instructions for AS-i power supply units, see https://support.industry.siemens.com/cs/ww/en/view/21489904 and https://support.industry.siemens.com/cs/ww/en/view/22317836

AS-Interface power supply units feed 30 V DC into the AS-Interface cable and supply the AS-Interface components. They include power-optimized data decoupling for the separation of communication signals and supply voltage. As the result, AS-Interface is able to convey both data and power along a single line. The power supply units are resistant to overload and short circuits.

### *Dimensions*

AS-Interface power supply units have compact dimensions in widths of 50/70/120 mm. No distances from other devices need to be observed when mounting the power supply units.

### *Features*

- Higher rating: The power supply units deliver currents of 2.6 to 8 A.
- Integrated data decoupling: As the result, AS-Interface is able to convey both data and power along a single line.
- Integrated ground-fault detection: The power supply units perform the reliable detection and signaling of ground faults according to IEC 60204-1. The AS-Interface voltage can be disconnected automatically in the event of a ground fault.
- Integrated overload detection: An output overload is detected and reported over a diagnostics LED.
- Diagnostics memory: Any ground faults or overloads on the output side are stored in a diagnostics memory and signaled until the device is RESET.
- Remote RESET and remote signaling: Using relay contacts, a ground fault can be signaled and evaluated by a central controller and/or indicator light.
- Diagnostics LEDs: Three different LEDs indicate the status of the AS-Interface power supply unit locally at the power supply unit.
- Ultra-wide input range/2-phase connection: The ultra-wide input range of 120 to 500 V of the 8 A version means that the supply units can be used in virtually any network worldwide. In addition, this version dispenses with the need for an N conductor as the device can be connected directly between 2 phases of a network.
- Operation with 24 V DC: The 3 A power supply unit is also available as a version with a 24 V DC input. This power supply unit is suitable for use in battery-powered systems or in systems with UPS (uninterruptible power supply).
- Removable terminal blocks with spring-loaded terminals: For easy exchanging of devices, each power supply unit has three removable terminal blocks: for the input side, for the output side and for Signal/RESET connections.

## Benefits

- Complete solution for supplying AS-Interface networks while making full use of the maximum possible cable length per AS-i segment
- Only AS-i masters and AS-i slaves need to be connected to the AS-Interface cable in order to operate AS-Interface
- Compact, space-saving dimensions
- Reliable power supply even for large numbers of AS-Interface modules with a high power requirement
- Integrated ground-fault and overload detection saves the need for additional components and enhances safety
- Fast fault detection and reduced downtimes thanks to diagnostics memory, remote signaling and Remote RESET
- Reduced downtimes as the result of removable terminal blocks which enable the fast exchanging of devices
- Ultra-wide input range of the 8 A version permits 1-phase and 2-phase operation and removes the need for an N conductor
- Can be used world-wide thanks to, for example, UL/CSA approval (UL 508)
- With the 2.6 A version, the output power is restricted to max. 100 W for use in Class 2 circuits in accordance with NEC (National Electrical Code)

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## AS-Interface power supply units

### Selection and ordering data

3RX9501-0BA00

3RX9503-0BA00

| Version | | Spring-loaded terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| | | Article No. | | | |
| **AS-Interface power supply units, IP20**<br>• AS-i single output 30 V DC<br>• Output voltage ES1 according to IEC 62368-1<br>• With integrated ground-fault detection<br>• Ambient temperature during operation -10 ... +70 °C<br>• 2.6 A version with output power restricted to max. 100 W (for Class 2 circuits in accordance with NEC)<br>• Dimensions: Width: 50 mm (2.6 A/3 A), 70 mm (5 A), 120 mm (8 A); Height: 125 mm; Depth: 125 mm | | | | | |
| Output current | Input voltage | | | | |
| 3 A | 120/230 V AC (selectable) | **3RX9501-0BA00** | 1 | 1 unit | 42C |
| 5 A | 120/230 V AC (selectable) | **3RX9502-0BA00** | 1 | 1 unit | 42C |
| 8 A | 120/230 ... 500 V AC (selectable) | **3RX9503-0BA00** | 1 | 1 unit | 42C |
| For special applications | | | | | |
| 3 A | 24 V DC | **3RX9501-1BA00** | 1 | 1 unit | 42C |
| 2.6 A/max. 100 W | 120/230 V AC (selectable) | **3RX9501-2BA00** | 1 | 1 unit | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

PSN130S 30 V power supply units for 3 A, 4 A and 8 A

**More information**

For operating instructions and other technical information, see https://support.industry.siemens.com/cs/ww/en/view/64364000 and https://support.industry.siemens.com/cs/ww/en/view/44030789

The PSN130S 30 V power supply units feed 30 V DC into the AS-Interface cable and supply the AS-Interface components, but do not include data decoupling. Data decoupling modules are needed in addition therefore to separate communication signals and control supply voltage, see page 2/71 or 2/73.

The power supply units are resistant to overload and short circuits.

### *Dimensions*

The 30 V power supply units have compact dimensions with widths of 50 and 70 mm. No distances from other devices need to be observed when mounting the power supply units.

### *Features*

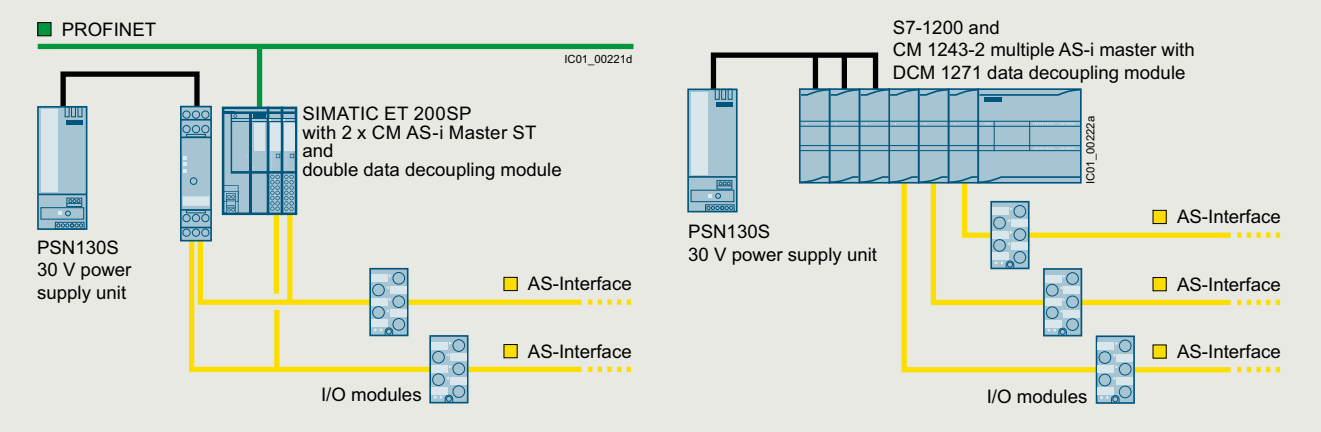
- Primary switched-mode power supplies for connection to a 1-phase AC system
- Power for currents of 3 A, 4 A and 8 A
- The output voltage is floating, and resistant to short-circuits and no-load operation. If there is an overload, the output voltage is reduced or cut-off. After a short circuit or overload, the devices start up again automatically.
- In the event of a device fault, the output voltage will be limited to max. 37 V.
- Modular installation devices in degree of protection IP20 and protection class I
- Diagnostics: With an output voltage > 26.5 V DC, the green LED (30 V O.K.) is lit and the signaling contact 13-14 is closed.

## Benefits

- Low-cost alternative solution for supplying AS-Interface networks while making full use of the maximum possible cable length per AS-i segment
- Cost advantage particularly for multiple networks
- Compact, space-saving dimensions
- Reliable power supply even for large numbers of AS-Interface modules with a high power requirement
- Can be used world-wide thanks to, for example, UL/CSA approval (UL 508)

## Application

### *Configuration examples of AS-Interface networks with a 30 V power supply unit*




Configuration of AS-Interface multiple networks with one PSN130S 30 V power supply unit (examples with schematic representation):
Left: Double network based on the S22.5 double data decoupling module and a SIMATIC ET 200SP with two CM AS-i Master ST modules
Right: Triple network based on the SIMATIC S7-1200 with DCM 1271 data decoupling modules and CM 1243-2 communications processors

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## 30 V power supply units

### Technical specifications

| PSN130S 30 V DC power supply unit | | 3 A | 4 A | 8 A |
|---|---|---|---|---|
| **Input data** | | | | |
| • Input voltage, rated value $U_e$ | V AC | 120/230 V, 1-phase, automatic selection | | |
| • Range of input voltage | V AC | 85 ... 132/174 ... 264 | | |
| • Mains frequency | Hz | 50/60 | | |
| • Power consumption at full load, typ. | W | 103 | 139 | 270 |
| **Output data** | | | | |
| • Output voltage, rated value $U_a$ | V DC | 30 | | |
| • Residual ripple | $mV_{pp}$ | < 150 | | |
| • Output current, rated value at -20 ... +60 °C | A | 3 | 4 | 8 |
| • Max. output current at +60 ... +70 °C | A | 3 | 3 | 4 |
| **Degree of efficiency under rated conditions** | | | | |
| • Degree of efficiency | % | 87 | 88 | 90 |
| • Power loss, typ. | W | 12 | 17 | 25 |

| PSN130S 30 V DC power supply unit | | 3 A | 4 A | 8 A |
|---|---|---|---|---|
| **Protection and monitoring** | | | | |
| • Output overvoltage protection | V | < 37 | | |
| • Current limiting, typ. | A | 4 | 5.5 | 11 |
| **Operating data** | | | | |
| Ambient temperature | | | | |
| • Operation | °C | -20 ... +70 | | |
| • Transportation/storage | °C | -40 ... +85 | | |
| Pollution degree | | 2 | | |
| Humidity class | | Climate class according to DIN 50010, relative air humidity max. 100%, without condensation | | |
| **Dimensions and weight** | | | | |
| • Width | mm | 50 | 50 | 70 |
| • Height x depth | mm | 125 x 126.5 | | |
| • Weight | kg | 0.4 | 0.4 | 0.7 |

### Selection and ordering data

| | Version | | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | | Article No. | Price per PU | | |
| | **PSN130S 30 V DC power supply unit (without AS-i data decoupling)**<br>• Output voltage 30 V DC<br>• Output voltage ES1 according to IEC 62368-1<br>• Dimensions:<br>Width: 50 mm (3 A/4 A); 70 mm (8 A);<br>Height: 125 mm;<br>Depth: 126.5 mm | | | | | |
| | Output current | Input voltage | | | | |
| <br>3RX9511-0AA00 | 3 A | 120/230 V AC (automatic selection) | **3RX9511-0AA00** | 1 | 1 unit | 42C |
| <br>3RX9512-0AA00 | 4 A | 120/230 V AC (automatic selection) | **3RX9512-0AA00** | 1 | 1 unit | 42C |
| <br>3RX9513-0AA00 | 8 A | 120/230 V AC (automatic selection) | **3RX9513-0AA00** | 1 | 1 unit | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

AS-Interface S22.5 double data decoupling module:
Screw terminal version (picture on left),
Spring-loaded terminal version (picture on right)

**More information**

Operating Instructions, see
https://support.industry.siemens.com/cs/ww/en/view/44030789

More information on AS-i Power24V, see
System Manual for AS-Interface,
https://support.industry.siemens.com/cs/ww/en/view/26250840

With the aid of the S22.5 data decoupling module, the AS-Interface network can also be supplied with 24 V DC or 30 V DC from a standard power supply unit and the transmission of data and power can be realized along one cable.

The combination of data decoupling modules and standard power supply units is therefore a cost-efficient alternative to the service-proven AS-Interface power supply units.

The quality of the data signals and the reliable operation of the AS-i network are not negatively affected as the result.

***Features of the S22.5 data decoupling module***

- Degree of protection IP20
- Narrow design: 22.5 mm wide
- Version with screw or spring-loaded terminals
- Versions for single and double data decoupling
- Supply of several AS-i networks with a single power supply unit
- Operation with 24 V DC or 30 V DC, grounded or non-grounded
- Adjustable current limiting up to 2 x 4 A
- Integrated ground-fault detection with fault storage, display can optionally be switched off
- Diagnostics LEDs and signaling contacts
- RESET by button or Remote RESET

***Ground-fault detection***

The integrated ground-fault detection works with a grounded and non-grounded supply: The connection of negative pole and ground (upstream from the data decoupling module) customary with 24 V DC power supplies is permitted. A ground fault to the negative or positive pole on the AS-Interface network (downstream from the data decoupling module) is detected and stored as a fault and will be signaled using LEDs and a relay contact.

Using the ground-fault detection in the AS-i master is recommended for non-grounded supply. In this case, the ground-fault indicator can be deactivated in the data decoupling module to avoid any unwanted LED messages.

## Benefits

- Compatible expansion of the AS-Interface system
- An existing standard power supply unit with 24 V DC or 30 V DC can be used for supplying AS-i networks
- The AS-Interface system can also be used in tightly budgeted applications because no AS-Interface power supply unit needs to be purchased
- Applications benefit in addition from the advantages of a modern bus system:
  - High level of standardization
  - Additional diagnostics and maintenance information
  - Faster commissioning
- Easy and cost-efficient design of single and multiple networks is possible

## Application

The AS-Interface data decoupling module is designed for AS-Interface networks with 30 V or 24 V supply (AS-i Power24V).

Operation of an AS-i network with the data decoupling module and a 30 V standard power supply unit is technically equivalent to the use of an AS-Interface power supply unit and offers the service-proven features of AS-Interface for all applications.

AS-Interface Power24V uses a 24 V power supply unit in conjunction with a data decoupling module and is particularly suitable for:

- Compact machines using AS-Interface input/output modules
- Applications in the control cabinet for AS-Interface integration of SIRIUS 3RT2 contactors using 3RA27 function modules

When using the double data decoupling module or other data decoupling units, several AS-Interface networks can be operated with a single power supply unit. This results in an additional cost advantage.

Note:

The power supply units must comply with the ES1 (IEC 62368-1) or PELV (Protective Extra Low Voltage)/SELV (Safety Extra Low Voltage) standards, have a residual ripple of < 250 $mV_{pp}$, and must limit the output voltage to a maximum of 40 V in the event of a fault.

We recommend

- SITOP power supplies, see page 15/1 or Catalog KT 10.1, https://support.industry.siemens.com/cs/ww/en/view/109745655.
- PSN130S 30 V power supply units, see page 2/69

Note on AS-i Power24V:

The length of an AS-i Power24V network is restricted to 50 m in order to limit the voltage drop along the cable.

AS-i masters, AS-i slaves and the sensors and actuators supplied through the AS-i cable must be designed for the reduced voltage. Sensors and actuators for the standard voltage range of 10 to 30 V can be supplied with sufficient voltage.

Please also observe the requirements specified in "AS-i Power24V" for the operation of an AS-i Power24V network, see page 2/23.

For more information on AS-i Power24V, see System Manual for AS-Interface, https://support.industry.siemens.com/cs/ww/en/view/26250840.

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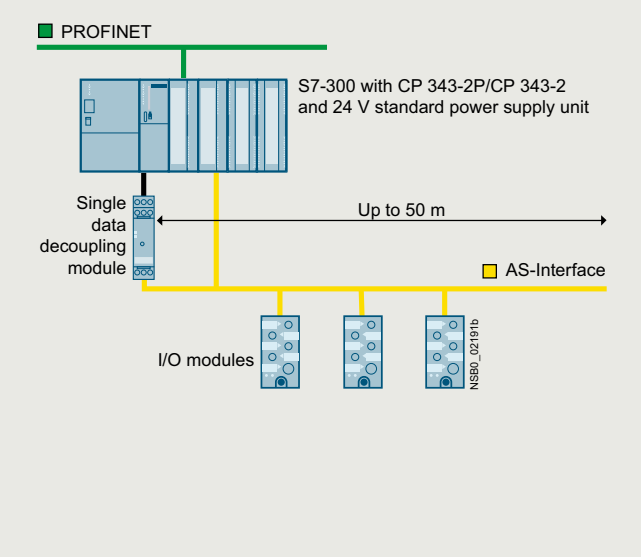
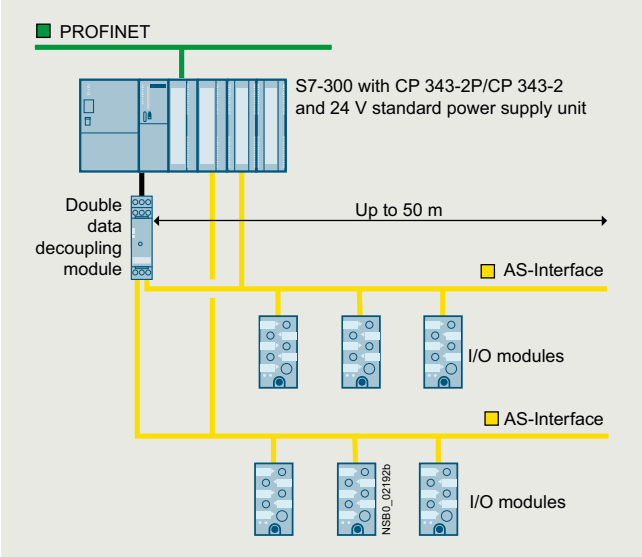
## S22.5 data decoupling modules

***Configuration of an AS-i Power24V network with AS-Interface S22.5 data decoupling module***




Single network




Multiple network

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1901-1DE12-1AA0 | **S22.5 data decoupling modules**<br>With screw terminals, removable terminals, width 22.5 mm, height 101 mm, depth 115 mm | **Screw terminals** | | | | |
| | • Single data decoupling module, 1 x 4 A | **3RK1901-1DE12-1AA0** | | 1 | 1 unit | 42C |
| | • Double data decoupling module, 2 x 4 A | **3RK1901-1DE22-1AA0** | | 1 | 1 unit | 42C |
| 3RK1901-1DG12-1AA0 | **S22.5 data decoupling modules**<br>With spring-loaded terminals, removable terminals, width 22.5 mm, height 105 mm, depth 115 mm | **Spring-loaded terminals** | | | | |
| | • Single data decoupling module, 1 x 4 A | **3RK1901-1DG12-1AA0** | | 1 | 1 unit | 42C |
| | • Double data decoupling module, 2 x 4 A | **3RK1901-1DG22-1AA0** | | 1 | 1 unit | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

DCM 1271 data decoupling module for SIMATIC S7-1200

**More information**

Manual for AS-i master CM 1234-2 and AS-i DCM 1271 data decoupling module, see https://support.industry.siemens.com/cs/ww/en/view/57358958

For more information on AS-i Power24V, see System Manual for AS-Interface, https://support.industry.siemens.com/cs/ww/en/view/26250840

With the aid of the DCM 1271 data decoupling module, the AS-Interface network can also be supplied with 24 V DC or 30 V DC from a standard power supply unit and the transmission of data and power can be realized along one cable.

The DCM 1271 data decoupling module has the same enclosure design as the S7-1200 module and is therefore ideal for combining with the CM 1243-2 AS-i master.

The DCM 1271 data decoupling module has no connection to the backplane bus of the SIMATIC S7-1200 and is not counted as a communications module when calculating the maximum configuration.

***Features of the DCM 1271 data decoupling module***

- Design: S7-1200, width 30 mm, degree of protection IP20
- Detachable terminals (included in the scope of supply)
- Single data decoupling
- Supply of several AS-i networks with a single power supply unit
- Operation with 24 V DC or 30 V DC, grounded or non-grounded
- Current limiting at 4 A
- Integrated ground-fault detection
- Diagnostics LEDs for ground faults and overloads
- Signaling contacts for ground-fault detection

***Ground-fault detection***

The integrated ground-fault detection works with a grounded and non-grounded supply: The connection of negative pole and ground (upstream from the data decoupling module) customary with 24 V DC power supplies is permitted. A ground fault to the negative or positive pole on the AS-Interface network (downstream of the data decoupling module) is identified and signaled via LED and a transistor output.

## Benefits

- An existing standard power supply unit with 24 V DC or 30 V DC can be used for supplying AS-i networks
- The AS-Interface system can also be used in tightly budgeted applications because no AS-Interface power supply unit needs to be purchased
- Applications benefit in addition from the advantages of a modern bus system:
  - High level of standardization
  - Additional diagnostics and maintenance information
  - Faster commissioning

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## Application

The AS-Interface data decoupling module is designed for AS-Interface networks with 30 V or 24 V supply (AS-i Power24V).

Operation of an AS-i network with the data decoupling module and a 30 V standard power supply unit is technically equivalent to the use of an AS-Interface power supply unit and offers the service-proven features of AS-Interface for all applications.

AS-i Power24V uses a 24 V power supply unit in conjunction with a data decoupling module and is particularly suitable for

- Compact machines using AS-Interface input/output modules
- Applications in the control cabinet for AS-Interface integration of SIRIUS 3RT2 contactors using 3RA27 function modules

Note:

The power supply units must comply with the ES1 (IEC 62368-1) or PELV (Protective Extra Low Voltage)/SELV (Safety Extra Low Voltage) standards, have a residual ripple of < 250 $mV_{pp}$, and must limit the output voltage to a maximum of 40 V in the event of a fault.

We recommend

- SITOP power supplies, see page 15/1 or Catalog KT 10.1, https://support.industry.siemens.com/cs/ww/en/view/109745655.
- PSN130S 30 V power supply units, see page 2/69

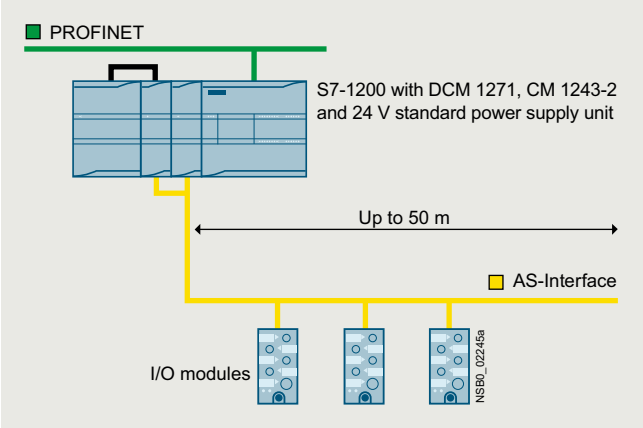
Note on AS-i Power24V:

The length of an AS-i Power24V network is restricted to 50 m in order to limit the voltage drop along the cable.

AS-i masters, AS-i slaves and the sensors and actuators supplied through the AS-i cable must be designed for the reduced voltage. Sensors and actuators for the standard voltage range of 10 to 30 V can be supplied with sufficient voltage.

Please also observe the requirements specified in "AS-i Power24V" for the operation of an AS-i Power24V network, see page 2/23.

For more information on AS-i Power24V, see System Manual for AS-Interface, https://support.industry.siemens.com/cs/ww/en/view/26250840.




Configuration of an AS-i Power24V network with DCM 1271 AS-Interface data decoupling module

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## Selection and ordering data

| Version | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| <br>3RK7271-1AA30-0AA0<br>**DCM 1271 data decoupling module**<br>• Max. current: 1 x 4 A<br>• Removable terminals (included in the scope of supply)<br>• Dimensions W x H x D (mm): 30 x 100 x 75 | **3RK7271-1AA30-0AA0** | | 1 | 1 unit | 42C |

## Accessories

| Version | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Screw terminals (spare part)** | | | | | |
| • 5-pole,<br>For AS-i master CM 1243-2 and AS-i DCM 1271 data decoupling module | **3RK1901-3MA00** | | 1 | 1 unit | 42C |
| • 3-pole,<br>For AS-i DCM 1271 data decoupling module for connecting the power supply unit | **3RK1901-3MB00** | | 1 | 1 unit | 42C |
| <br>3RK7243-2AA30-0XB0<br>**CM 1243-2 communications module**<br>• AS-Interface master for SIMATIC S7-1200<br>• Corresponds to AS-Interface specification V3.0<br>• Removable terminals (included in the scope of supply)<br>• Dimensions W x H x D (mm): 30 x 100 x 75<br>See also from page 2/37 onwards | **3RK7243-2AA30-0XB0** | | 1 | 1 unit | 42C |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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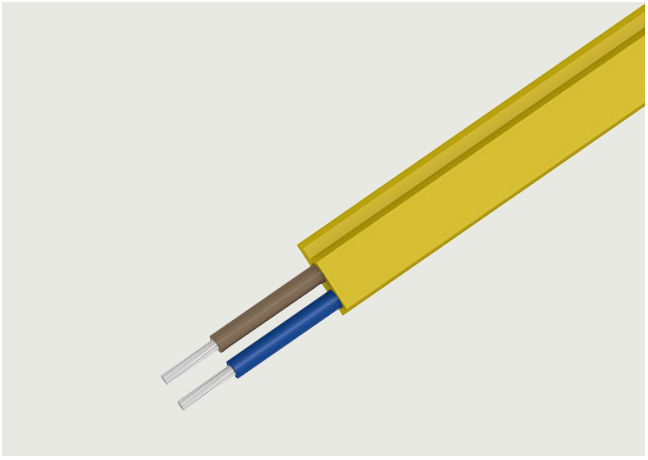
## AS-Interface shaped cable



### Overview



AS-Interface shaped cable

The actuator-sensor interface – the networking system used for the lowest field area – is characterized by very easy mounting and installation. A new connection method was developed specially for AS-Interface.

The stations are connected using the AS-Interface cable. This two-wire AS-Interface shaped cable has a trapezoidal shape, thus ruling out polarity reversal.

Connection is effected by the insulation piercing method. In other words, male contacts pierce the AS-Interface shaped cable and make reliable contact with the two wires. Cutting to length and stripping are superfluous. Consequently, AS-Interface stations (e.g. I/O modules, intelligent devices) can be connected in the shortest possible time and exchanging devices is quick.

To enable use in the most varied ambient conditions (e.g. in an oily environment), the AS-Interface cable is available in different materials (rubber, TPE, PUR).

For special applications it is also possible to use an unshielded standard round cable H05VV-F 2 x 1.5 $mm^2$ according to AS-i specification. With AS-Interface, data and energy for the sensors (e.g. proximity switches) and actuators (e.g. indicator lights) are transmitted over the yellow AS-Interface cable.

The black AS-Interface cable must be used for actuators with a 24 V DC supply (e.g. solenoid valves) and a high power requirement.

***Suitable for operation in cable carriers***

The use of the AS-Interface shaped cables with TPE and PUR outer sheath was checked in a cable carrier test with the following conditions:

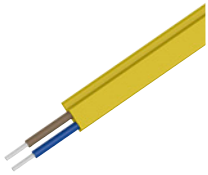
| | | |
|---|---|---|
| Chain length | m | 6 |
| Travel | m | 10 |
| Bending radius | mm | 75 |
| Travel speed | m/s | 4 |
| Acceleration | $m/s^2$ | 4 |
| Number of cycles | | 10 million |
| Duration of test | | approx. 3 years (11 000 cycles per day) |

After termination of the 10 million cycles only slight wear was visible due to the lugs of the cable carrier. No damage to the cores and core insulation could be detected.

Note:

When using a cable carrier, the cables must be installed in such a way that they are not subject to tensile forces. On no account may the cables be twisted, but they must be routed flat through the cable carrier.

### Selection and ordering data



3RX90..-0AA00

| Version | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **AS-Interface shaped cables** | | | | | | | |
| Material | Color | Quantity | | | | | |
| Rubber | Yellow (AS-Interface) | 100 m roll | **3RX9010-0AA00** | | 1 | 1 unit | 42C |
| | Yellow (AS-Interface) | 1 km drum | **3RX9012-0AA00** | | 1 | 1 unit | 42C |
| | Black (24 V DC) | 100 m roll | **3RX9020-0AA00** | | 1 | 1 unit | 42C |
| | Black (24 V DC) | 1 km drum | **3RX9022-0AA00** | | 1 | 1 unit | 42C |
| TPE | Yellow (AS-Interface) | 100 m roll | **3RX9013-0AA00** | | 1 | 1 unit | 42C |
| | Yellow (AS-Interface) | 1 km drum | **3RX9014-0AA00** | | 1 | 1 unit | 42C |
| | Black (24 V DC) | 100 m roll | **3RX9023-0AA00** | | 1 | 1 unit | 42C |
| | Black (24 V DC) | 1 km drum | **3RX9024-0AA00** | | 1 | 1 unit | 42C |
| TPE special version according to UL Class 2 | Yellow (AS-Interface) | 100 m roll | **3RX9017-0AA00** | | 1 | 1 unit | 42C |
| | Black (24 V DC) | 100 m roll | **3RX9027-0AA00** | | 1 | 1 unit | 42C |
| PUR | Yellow (AS-Interface) | 100 m roll | **3RX9015-0AA00** | | 1 | 1 unit | 42C |
| | Yellow (AS-Interface) | 1 km drum | **3RX9016-0AA00** | | 1 | 1 unit | 42C |
| | Black (24 V DC) | 100 m roll | **3RX9025-0AA00** | | 1 | 1 unit | 42C |
| | Black (24 V DC) | 1 km drum | **3RX9026-0AA00** | | 1 | 1 unit | 42C |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

AS-Interface repeater

The AS-Interface repeater is used to extend the AS-Interface cable.

- In its basic version, an AS-i network comprises one segment with a maximum cable length of 100 m. An extension plug (see page 2/79) can be used to increase the cable length for a segment to a maximum of 200 m.
- If this is insufficient, however, you can use one or more repeaters
- A repeater adds an extra segment to an existing segment. The extra segment can have a cable length of up to 100 m (without extension plug) or up to 200 m (with an extension plug in the extra segment)
- Each segment requires a separate AS-i power supply unit The repeater is automatically supplied with power by the AS-i power supply units.
- Electrical separation of the two AS-Interface shaped cable lines, e.g. interfering signals or ground faults are blocked at the repeater. The wanted signals are prepared by the repeater and passed on after amplification.
- Slaves can be used on both sides of the repeater because the repeater has a symmetrical internal structure. The AS-i master can be positioned before or after the repeater.
- The additional power supply can increase the current infeed for slaves/sensors and lower the voltage drop on the AS-i cable
- Separate display of the correct AS-Interface voltage by means of LED for each segment
- Installed in K45 module enclosure IP67 with mounting plate
- Easy mounting

## Benefits

- More possibilities of use and greater freedom for plant planning through extension of the AS-Interface network
- Reduced downtime and servicing times in the event of a fault thanks to separate display of the correct AS-Interface voltage for each side
- Increased operational reliability in extensive networks due to conditioning and amplification of the wanted signals.

***Design of an AS-Interface network with repeaters***

- Parallel connection of several repeaters possible (star configuration)
- Combination of series and parallel connection possible

The following conditions apply to enable the signal propagation times to be maintained:

- When used without an extension plug no more than two repeaters are permitted between AS-i master and slave (repeaters connected in series)
- When used with an extension plug no more than one repeater is permitted between AS-i master and slave

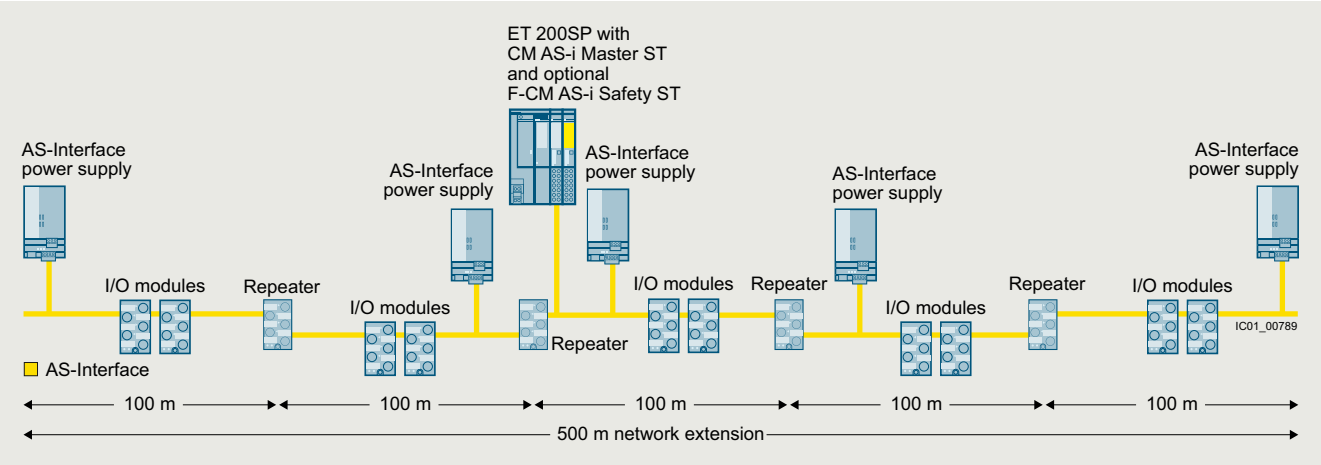
In safety-related applications the following also applies:

- When used without an extension plug, no more than two repeaters are permitted between evaluation unit (e.g. F-CM AS-i Safety ST for ET 200SP) and ASIsafe input slave or safe output module.
- When used with an extension plug, no more than one repeater is permitted between the evaluation unit (e.g. F-CM AS-i Safety ST for ET 200SP) and ASIsafe input slave or safe output module.

Note:

The open end of an AS-i bus cable must not be in the AS-Interface repeater. The AS-Interface shaped cable can be terminated by means of a cable end terminator to provide degree of protection IP67 where required, see "Miscellaneous accessories" on page 2/86.

The AS-Interface repeater is not suitable for AS-i Power24V networks. It is recommended for use in AS-Interface networks with AS-Interface power supply units (e.g. 3RX9501-0BA00).




Design of an example AS-Interface network with repeaters (without extension plug)

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## Repeaters



### Application

The repeater is used to extend the AS-Interface network. In this case there are AS-Interface slaves and one AS-Interface power supply unit on each side of the repeater.

As with all AS-Interface networks, any network structure (line, tree, star) is possible.

In an example configuration with two repeaters and three extension plugs, the maximum possible size of the AS-Interface network is 600 m, see example configuration with extension plug on page 2/79.

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 6GK1210-0SA01 | **Repeaters for AS-Interface**<br>• Cable extension due to expansion of an existing cable segment by an additional segment<br>• Doubling of the total cable length to 200 m when a repeater is used<br>• Amplification of the wanted signals<br>• Delivery includes mounting plate (for wall and DIN-rail mounting)<br>• Direct connection to AS-Interface shaped cable using the insulation displacement method<br>• Repeater does not require an AS-i address | **6GK1210-0SA01** | | 1 | 1 unit | 42C |

### Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1901-1MN00 | **Cable end terminator**<br>For sealing open cable ends (AS-Interface shaped cable) with IP67 | **3RK1901-1MN00** | | 1 | 10 units | 42C |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

AS-Interface Extension Plug Compact

With the Extension Plug Compact, it is possible to double the cable length possible in an AS-Interface segment from 100 to 200 m.

Only one AS-i power supply unit is needed to supply power to the slaves on the up to 200 m long segment.

The extension plug suppresses interfering signals that can arise due to reflection at the end of a long cable. The extension plug contains no amplification of the wanted signals.

The extension plug is mounted directly on the AS-Interface shaped cable by means of the insulation displacement method and does not require its own power supply.

***Design of an AS-Interface segment with an extension plug***

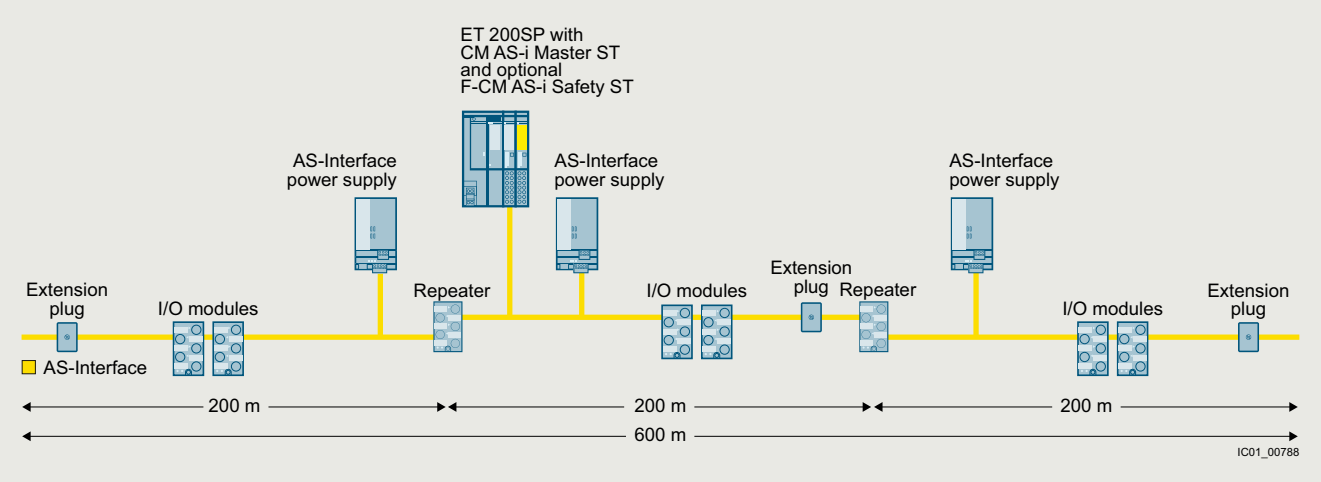
To construct an AS-Interface segment with a cable length of more than 100 m and up to a maximum of 200 m, the extension plug is installed in a radius of around ±10 m at the point of the network that is furthest from the AS-i power supply unit (tolerance up to 10 m from the end point). The extension plug is not allowed to be used in AS-Interface networks smaller than 100 m. Generally, any network structure (line, tree, star) is possible when using the extension plug. Only one extension plug is required per 200 m segment even with a tree or star structure.

The extension plug can be combined with the AS-Interface repeater, see page 2/78.

Note:

The open end of an AS-i bus cable must not be in the extension plug. The AS-Interface shaped cable can be terminated by means of a cable end terminator to provide degree of protection IP67 where required, see "Miscellaneous accessories" on page 2/86.

The AS-Interface extension plug is not suitable for AS-i Power24V networks. It is recommended for use in AS-Interface networks with AS-Interface power supply units (e.g. 3RX9501-0BA00).




Example configuration AS-Interface network with repeater and extension plug

## Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1901-1MX02 | **AS-Interface Extension Plug Compact**<br>• Doubling of the cable length to 200 m per AS-Interface segment<br>• Direct connection to AS-Interface shaped cable using the insulation displacement method<br>• Extension Plug Compact does not require an AS-i address | **3RK1901-1MX02** | | 1 | 1 unit | 42C |

## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1901-1MN00 | **Cable end terminator**<br>For sealing open cable ends (AS-Interface shaped cable) with IP67 | **3RK1901-1MN00** | | 1 | 10 units | 42C |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Addressing units



### Overview

The innovated addressing unit for AS-Interface of the AS-i specification V3.0

The addressing unit is used to assign an address during commissioning to each AS-Interface slave. The device detects a connected slave module or a complete AS-i network and displays the found module in the LCD display. Each address can be individually set using the Up/Down keys. By turning the rotary switch, further commissioning functions are selected intuitively. The innovative device has been adapted to the current AS-i specification V3.0 and can now also handle the I/O data of the latest slaves.

***Functionality***

- Reading out and adjusting the slave address 0 to 31 or 1A to 31A, 1B to 31B, with automatic addressing aid and prevention of double addresses
- Reading out the slave profile (IO, ID, ID2)
- Reading out and adjusting the ID1 code
- Input/output test when commissioning the slaves: Read input signals and write outputs with all digital and analog slaves according to AS-Interface specification V3.0, including safe input slaves and complex CTT2 slaves
- Measuring the voltage on the AS-Interface cable (measuring range from 2 to 35 V)
- Display of the operational current in case of direct connection of an AS-i slave (measuring range from 0 to 150 mA)
- Storage of complete network configurations (profiles of all slaves) to simplify the addressing
- Adjusting the slave parameters for commissioning
- Reading out the identification and diagnostics of CTT2 slaves
- Reading out the code table of safe input slaves (ASIsafe)

Note:

For operation of the addressing unit on an AS-Interface cable with connected power supply unit, the following applies:
The AS-Interface addressing unit is suitable for standard AS-i networks and AS-i Power24V networks (min. operational voltage on the AS-Interface cable 19 V).

### Benefits

- Increased power supply to the slaves to 150 mA
- Better utilization of the battery capacity thanks to improved circuitry
- Support for the current AS-i specification V3.0
- Expanded display for simultaneously displaying input and output states
- Clearly recognizable display of status of digital inputs/outputs in binary format (0/1), optionally also available as hexadecimal values
- Intuitive display of analog data either as decimal, hexadecimal or as a percentage (e.g. 100% corresponds to input/output value 20 mA)
- I/O data of complex slaves (CTT2 profile) can be displayed
- Decoded display of the input data of safe input slaves, including code table
- Simplification of the operating steps when setting the slave address with automatic read back of the set address
- Addressing cable, ready for operation even without screwing in tight into the M12 socket, thus faster availability of the addressing unit
- Proven compact housing with smooth keys and rotary switch
- Connection of standard AS-i networks possible with 30 V as well as Power24V networks
- Complex slaves with high operating currents can be addressed without external supply
- Longer operating time by automatic shutdown after approx. 5 minutes (or approx. 1 minute when data exchange is active) after last operation
- Can be used with all types of digital and analog slaves
- Comprehensive and fast input/output test of plants, even for A/B slaves with 4 DI/4 DQ and current analog modules with an A/B address
- Faster and more reliable commissioning of the AS-Interface modules
- One-hand operation possible, with unique selection of the functions
- Connection via M12 socket (pin 1: ASI+; pin 3: ASI-; pins 2, 4, 5: not used)
- Universal applicability for all AS-i networks

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1904-2AB02 | **AS-Interface addressing unit V3.0**<br>• For AS-Interface modules and sensors and actuators with integrated AS-Interface according to AS-i specification V3.0<br>• For setting the AS-i address of slaves with standard addresses, and slaves with extended addressing mode (A/B slaves)<br>• With input/output test function and many other commissioning functions<br>• Battery operation with four type AA batteries (IEC LR6, NEDA 15)<br>• Degree of protection IP40<br>• Dimensions W x H x D (mm): 84 x 195 x 35<br>• Scope of supply:<br>- Addressing unit with four batteries<br>- Addressing cable, with M12 plug to addressing plug (hollow plug), length 1.5 m | **3RK1904-2AB02** | | 1 | 1 unit | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1902-4PB15-3AA0 | **Addressing cable, with M12 plug to M12 socket**[1)]<br>• For addressing slaves with M12 connection, e.g. K20 or K60R modules or light curtains<br>• Length 1.5 m, 3-pole, 3 x 0.34 mm$^2$ | **3RK1902-4PB15-3AA0** | | 1 | 1 unit | 42D |
| 3RX9801-0AA00 | **AS-Interface M12 3RX feeder**<br>• Transition of AS-Interface cable to a standard round cable<br>• Insulation piercing method for connection of AS-Interface cable<br>• M12 socket for connection of standard round cable<br>• Current-carrying capacity up to 2 A | **3RX9801-0AA00** | | 1 | 1 unit | 42C |
| 3RK1901-2NR10 | **AS-Interface M12 3RK feeder**<br>• AS-Interface cable transition without $U_{aux}$, with M12 socket<br>• Insulation piercing method for connection of AS-Interface cable<br>• M12 socket for connection of standard round cable | **3RK1901-2NR10** | | 1 | 1 unit | 42C |
| 3RK1902-4HB50-5AA0 | **M12 cable plug**[2)]<br>• Extruded M12 plug (angled cable outlet 90°), other cable end open<br>• Length: 5 m, 5-pole, color: Black | **3RK1902-4HB50-5AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4BA00-5AA0 | **M12 plug, straight**[2)]<br>• For screw fixing, 5-pole screw terminal, max. 0.75 mm$^2$<br>• A-coded, max. 4 A | **3RK1902-4BA00-5AA0** | | 1 | 1 unit | 42D |
| | **Addressing cable, with M12 plug to addressing plug (hollow plug)**[3)]<br>• Included in the scope of supply of the addressing unit<br>• Length 1.5 m | **Z236A** | | | | |

1) Not included in scope of supply of the 3RK1904-2AB02 addressing unit.

2) For connecting the addressing unit to an AS-i network via AS-Interface M12 feeder it is necessary to establish a connection by means of a connecting cable (M12 plug to M12 connector) which must be wired as follows:
- M12 cable plug: pin 1/core brown ↔ M12 plug: pin 1
- M12 cable plug: pin 3/core blue ↔ M12 plug: pin 3
- Pin 2, 4, 5 not connected.

3) Addressing cable available from:
GMC-I Messtechnik GmbH
(see page 16/18).

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## Analyzer

### Overview

AS-Interface analyzer

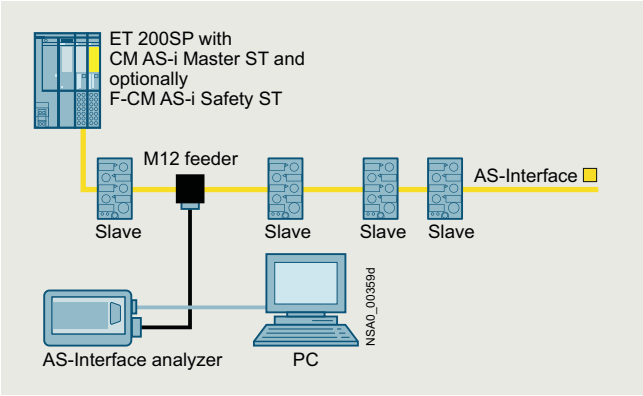
The AS-Interface analyzer is used to test AS-Interface networks.

Installation errors, e.g. loose contacts or EMC interference under extreme loads, can be revealed by this device.

Thanks to the easy-to-use software the user can assess the quality of complete networks even if he lacks detailed specialist knowledge of AS-Interface. In addition it is an easy matter with the AS-Interface analyzer to create test logs from the records produced, thus providing documentation for startups and service assignments.

For advanced AS-Interface users there are trigger functions for detailed diagnostics.

***Connection***




Connection of AS-Interface analyzer to PC and AS-Interface network

The AS-Interface analyzer follows the communication on the AS-Interface network as a passive station. The unit is supplied simultaneously from the AS-Interface cable.

This analyzer interprets the physical signals on the AS-Interface network and records the communication.

The data thus obtained are transferred through an RS 232 interface to a PC such as a notebook, for evaluation with the supplied diagnostics software.

### Benefits

- Simple and user-friendly operation enables diagnostics of AS-Interface networks without help from specialists
- Speedy troubleshooting thanks to intuitive display in statistics mode
- Test logs provide verification of the state and quality of the installation for service and approval
- Recorded logs facilitate remote diagnostics by Technical Support
- Comprehensive trigger functions enable exact analysis
- Process data can be monitored online

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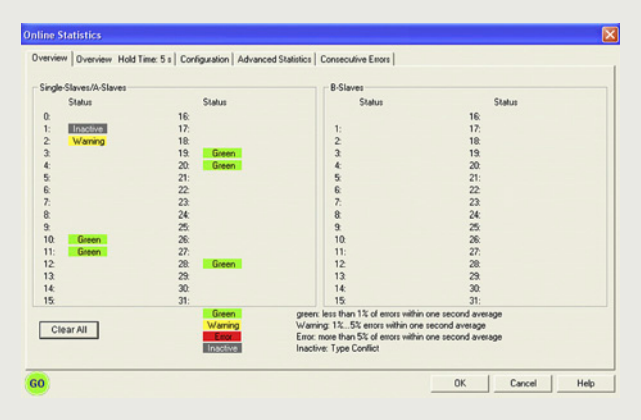
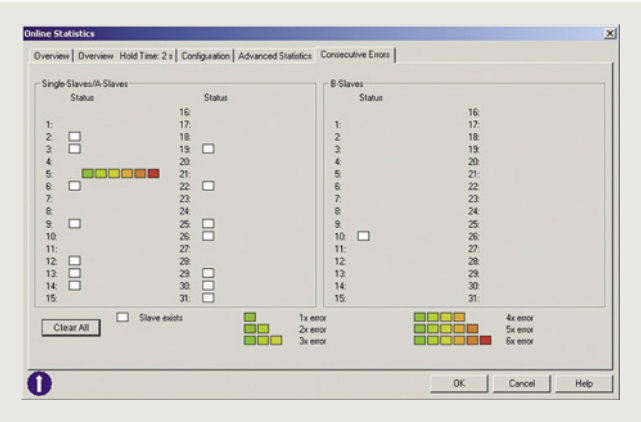
## Application

### *Online statistics*




Online statistics, overview




Online statistics, details, e.g. here a fault on slave 5

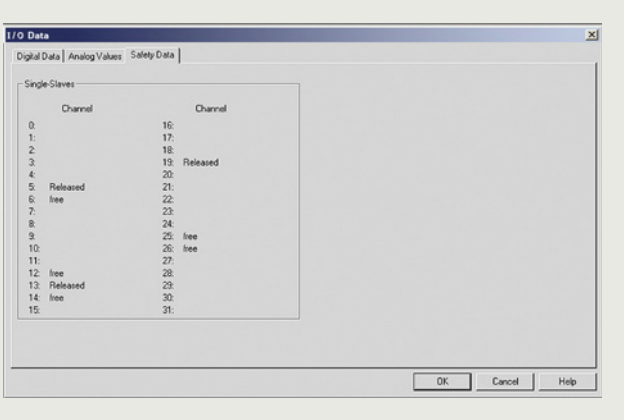
This mode provides a quick overview of the existing AS-Interface system. The error rates are displayed per slave in a traffic-light function (green, yellow, red).

The bus configuration and the currently transmitted data of the slaves are shown in a well arranged presentation.

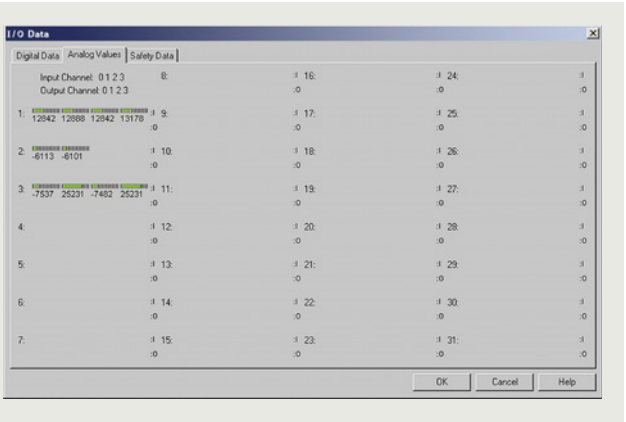
With the expanded statistics function, it is possible to determine the error rates as the number of transmitted or faulty bus message frames.

The bundle error overview shows in steps how many multiple repetitions of message frames occurred in order to enable a selective and look-ahead assessment of the transmission quality.

### *Data mode*




Presentation of the I/O data: Safety data




Presentation of the I/O data: Analog values

In this mode, the analyzer shows not only the digital input/output values but also the current analog values and the input status of the safety slaves.

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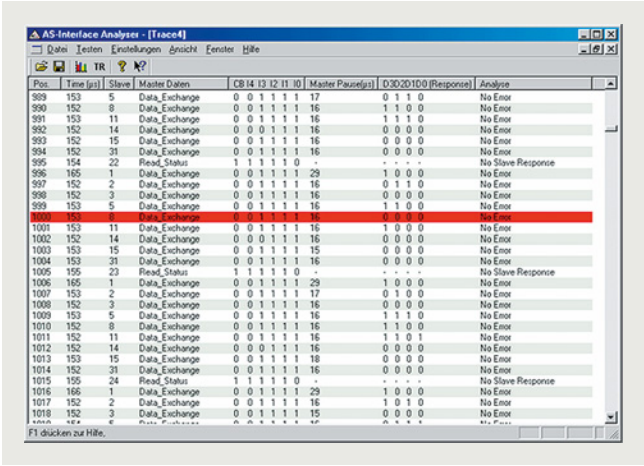
## Analyzer



### *Trace mode*




Presentation of message frames in trace mode

The presentation of message frames in the style of a classic fieldbus analyzer is indispensable for complex troubleshooting. Extensive trigger functions and recording and viewing filters are available for this purpose. An external trigger input and trigger output round off the scope of functions in order to find even the most difficult errors.

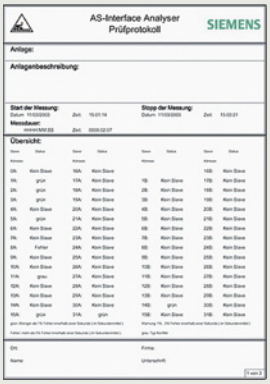
For troubleshooting in connection with ASIsafe applications, changes of status in the code tables of safety slaves are identified and assessed.

The AS-i analyzer can be used with an AS-i master in accordance with AS-Interface specification V3.0 or a predecessor version.

The analyzer does not automatically decode the process values for type CTT2 - CTT5 AS-i slaves. As for other slave types, the message frames are recorded and evaluated in the statistics. If required, decoding can also be performed by the user manually.

For more information, see https://support.industry.siemens.com/cs/ww/en/view/109746763.

### *Test log*




Example of a test log

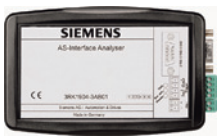
The recorded data of the online statistics are easy to output and document using a test log. Verification of the state of the plant can thus be provided for approvals or service assignments.

The integrated measurement assistant records the bus signals for a variable duration, thereby triggering creation of an automatic test log. A standardized quality test of AS-i plants is thus possible.

Note:

The AS-Interface analyzer is suitable for standard AS-i networks and AS-i Power24V networks (min. operational voltage 20 V).

## Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
|  3RK1904-3AB01 | **AS-Interface analyzer**<br>• For testing AS-Interface systems<br>• For troubleshooting and service assignments in installations and networks with AS-Interface systems<br>• Dimensions W x H x D (mm): 145 x 30 x 92<br>• Scope of supply:<br>- AS-Interface analyzer<br>- RS 232 cable for connecting to a PC<br>- USB-to-serial/RS 232 adapter<br>- Screwdriver<br>- Magnetic adhesive tape for fastening the analyzer to metal surfaces<br>- Service case with foam insert, dimensions W x H x D (mm): approx. 260 x 70 x 200<br>- Diagnostics software (CD-ROM) for PC with Windows operating system | **3RK1904-3AB01** | | 1 | 1 unit | 42C |

Note:

Download the current version of the diagnostics software for PC with Windows operating system, see https://support.industry.siemens.com/cs/ww/en/view/109750259.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RX9801-0AA00 | **AS-Interface M12 3RX feeder**<br>• Transition of AS-Interface shaped cable to a standard round cable<br>• Insulation piercing method for connection of AS-Interface cable<br>• M12 socket for connection of standard round cable<br>• Current-carrying capacity up to 2 A<br>• Degree of protection IP67 | **3RX9801-0AA00** | | 1 | 1 unit | 42C |
| 3RK1901-2NR10 | **AS-Interface M12 3RK feeder**<br>• AS-Interface cable transition without $U_{aux}$, with M12 socket<br>• Insulation piercing method for connection of AS-Interface cable<br>• M12 socket for connection of standard round cable<br>• Max. 4 A<br>• Degree of protection IP67/IP68/IP69 (IP69K) | **3RK1901-2NR10** | | 1 | 1 unit | 42C |
| 3RK1902-4HB50-5AA0 | **M12 cable plugs**<br>• PUR cable, 5-pole<br>• Length 5 m<br>• Color black<br>• Extruded M12 plug (angled cable outlet 90°), other cable end open | **3RK1902-4HB50-5AA0** | | 1 | 1 unit | 42D |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

**More information**

System Manual for AS-Interface, see
https://support.industry.siemens.com/cs/ww/en/view/26250840

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1901-2NN10 | **AS-Interface compact distributors, for AS-Interface flat cable**<br>• Current-carrying capacity up to 8 A<br>• Degree of protection IP67/IP68/IP69 (IP69K) | | | 1 | 1 unit | 42C |
| | For flat cable: AS-i or $U_{aux}$ / For: Flat ribbon cable AS-i or $U_{aux}$ / Cable length: -- / Cable end in feeder: Not available | **3RK1901-2NN10** | | 1 | 1 unit | 42C |
| 3RX9801-0AA00 | **AS-Interface M12 3RX feeder**<br>• Current-carrying capacity up to 2 A<br>• Degree of protection IP67 | | | | | |
| | For flat cable: AS-i / For: M12 socket / Cable length: -- / Cable end in feeder: Available | **3RX9801-0AA00** | | 1 | 1 unit | 42C |
| 3RK1901-2NR10 | **AS-Interface M12 3RK feeder**<br>• Current-carrying capacity up to 4 A<br>• Degree of protection IP67/IP68/IP69 (IP69K) | | | | | |
| 3RK1901-2NR21 | For flat cable: AS-i / For: M12 socket / Cable length: -- / Cable end in feeder: Not available | **3RK1901-2NR10** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i / For: M12 cable box / Cable length: 1 m / Cable end in feeder: Not available | **3RK1901-2NR11** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i / For: M12 cable box / Cable length: 2 m / Cable end in feeder: Not available | **3RK1901-2NR12** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i/$U_{aux}$ / For: M12 socket / Cable length: -- / Cable end in feeder: Not available | **3RK1901-2NR20** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i/$U_{aux}$ / For: M12 cable box / Cable length: 1 m / Cable end in feeder: Not available | **3RK1901-2NR21** | | 1 | 1 unit | 42C |
| | For flat cable: AS-i/$U_{aux}$ / For: M12 cable box / Cable length: 2 m / Cable end in feeder: Not available | **3RK1901-2NR22** | | 1 | 1 unit | 42C |
| 3RK1901-1NR04 | **AS-Interface M12 feeders, 4-fold**<br>• Current-carrying capacity up to 4 A<br>• Degree of protection IP67 | | | | | |
| | For flat cable: AS-i/$U_{aux}$ / For: 4-fold M12 socket, delivery includes mounting plate (for wall and DIN-rail mounting) / Cable length: -- / Cable end in feeder: Not available | **3RK1901-1NR04** | | 1 | 1 unit | 42C |
| 6ES7194-1KA01-0XA0 | **M12 Y-shaped coupler plugs**<br>For connection of two sensors to one M12 socket with Y-assignment | **6ES7194-1KA01-0XA0** | | 1 | 1 unit | 250 |
| 3RK1901-1KA00 3RK1901-1KA01 | **AS-Interface sealing caps**<br>For free M12 sockets<br>• M12 | | | | | |
| | - Standard version | **3RK1901-1KA00** | | 100 | 10 units | 42C |
| | - Tamper proof | **3RK1901-1KA01** | | 100 | 10 units | 42C |
| 3RK1901-1PN00 | • M8 standard version | **3RK1901-1PN00** | | 100 | 10 units | 42C |
| 3RK1901-1MD00 | **AS-Interface M20 seals**<br>• For AS-Interface shaped cable<br>• For insertion in M20 glands | **3RK1901-1MD00** | | 100 | 10 units | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3RK1901-3QM00 | **Cable adapters for flat cables** | | | | | |
| | Connection of AS-Interface cable to metric gland with insulation piercing method | | | | | |
| | • Continuation using standard cable | | | | | |
| | - For M16 gland | **3RK1901-3QM00** | | 1 | 1 unit | 42C |
| | - For M20 gland | **3RK1901-3QM10** | | 1 | 1 unit | 42C |
| | • Continuation using pins | | | | | |
| | - For M16 gland | **3RK1901-3QM01** | | 1 | 1 unit | 42C |
| | - For M20 gland | **3RK1901-3QM11** | | 1 | 1 unit | 42C |
| 3RK1901-3QA00 | **Cable clip for cable adapters** | **3RK1901-3QA00** | | 100 | 10 units | 42C |
| 3RK1901-1MN00 | **Cable end terminator** | **3RK1901-1MN00** | | 1 | 10 units | 42C |
| | For sealing open cable ends of the AS-Interface shaped cable with IP67 | | | | | |
| 3RK1901-2EA00 3RK1901-0CA00 | **Mounting plates** | | | | | |
| | • K45 | | | | | |
| | - For wall mounting | **3RK1901-2EA00** | | 1 | 1 unit | 42C |
| | - For DIN-rail mounting | **3RK1901-2DA00** | | 1 | 1 unit | 42C |
| | • K60, suitable for all K60 compact modules | | | | | |
| | - For wall mounting | **3RK1901-0CA00** | | 1 | 1 unit | 42C |
| | - For DIN-rail mounting | **3RK1901-0CB01** | | 1 | 1 unit | 42C |
| 3RK1902-0AR00 | **Sealing set** | **3RK1902-0AR00** | | 100 | 5 units | 42D |
| | • For K60 mounting plate | | | | | |
| | • Cannot be used for K45 mounting plate | | | | | |
| | • One set contains one straight and one shaped seal | | | | | |
| 3RK1902-4GB50-4AA0 | **Control cable, assembled at one end** | | | | | |
| | Angled M12 socket for screw fixing, 4-pole, 4 x 0.34 mm$^2$, A-coded, black PUR sheath, max. 4 A | | | | | |
| | • Cable length 5 m | **3RK1902-4GB50-4AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4CA00-4AA0 | **M12 socket, angled** | **3RK1902-4CA00-4AA0** | | 1 | 1 unit | 42D |
| | For screw fixing, 4-pole screw terminals, max. 0.75 mm$^2$, A-coded, max. 4 A | | | | | |
| 3RK1902-4BA00-5AA0 | **M12 plugs** | | | | | |
| | For screw fixing, 5-pole screw terminals, max. 0.75 mm$^2$, A-coded, max. 4 A | | | | | |
| | • Straight | **3RK1902-4BA00-5AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4DA00-5AA0 | • Angled | **3RK1902-4DA00-5AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4H...-5AA0 | **Control cable, assembled at one end** | | | | | |
| | Angled M12 plug for screw fixing, 5-pole, 5 x 0.34 mm$^2$, A-coded, black PUR sheath, max. 4 A | | | | | |
| | • Cable length 1.5 m | **3RK1902-4HB15-5AA0** | | 1 | 1 unit | 42D |
| | • Cable length 5 m | **3RK1902-4HB50-5AA0** | | 1 | 1 unit | 42D |
| | • Cable length 10 m | **3RK1902-4HC01-5AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4PB15-3AA0 | **Control cable, assembled at both ends** | **3RK1902-4PB15-3AA0** | | 1 | 1 unit | 42D |
| | Straight M12 plug, straight M12 socket, for screw fixing, 3-pole, 3 x 0.34 mm$^2$, A-coded, black PUR sheath, max. 4 A | | | | | |
| | • Cable length 1.5 m | | | | | |
| | • Also for addressing AS-i slaves with M12 bus connection (e.g. K20, K60R compact modules, M200D motor starters) | | | | | |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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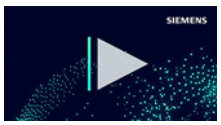
## Communications overview



### Overview

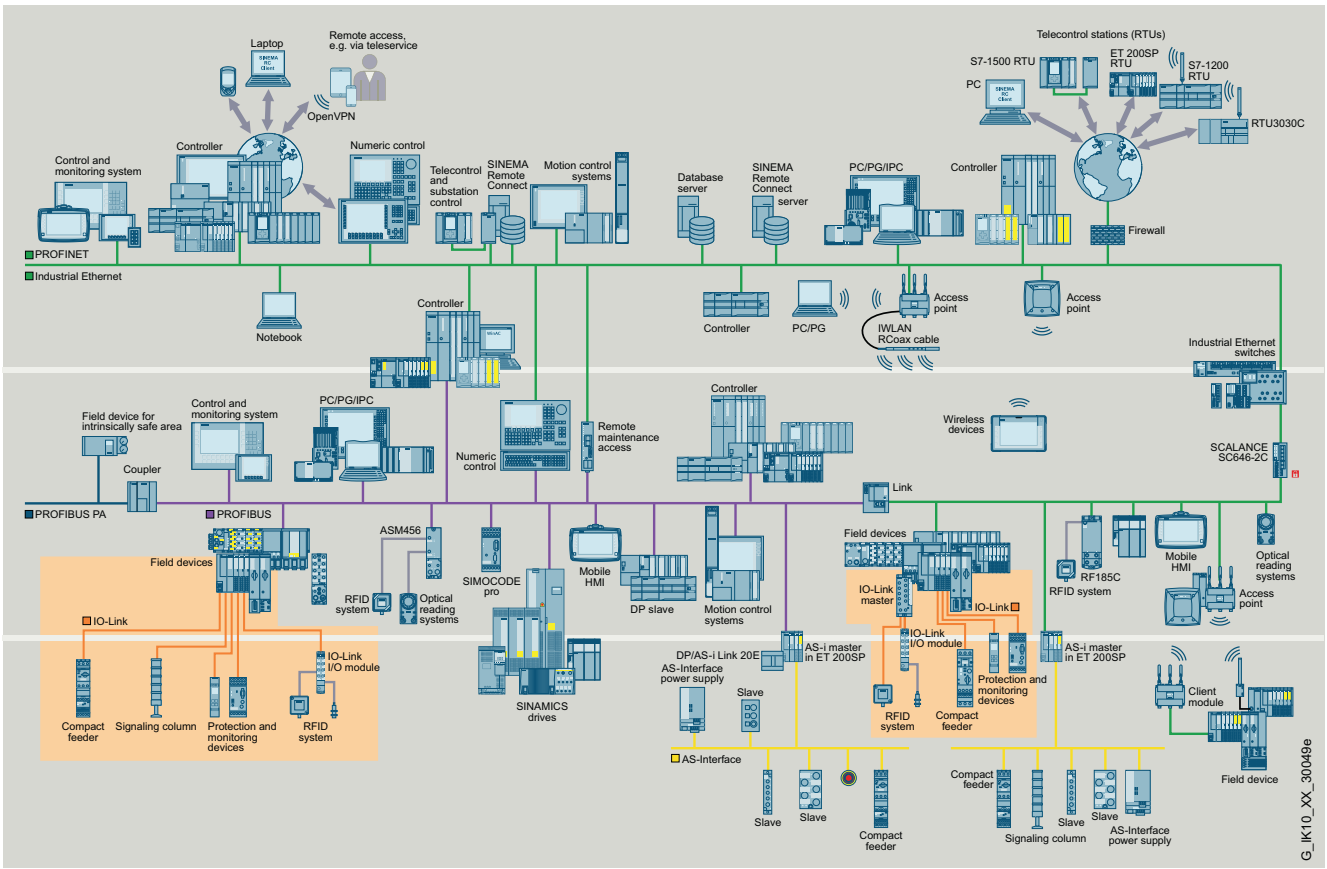
| More information | |
|---|---|
| Homepage, see www.siemens.com/io-link<br>TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=IoLink<br>For important topics at a glance, see https://support.industry.siemens.com/cs/ww/en/view/109737170 | For brochure, see https://assets.new.siemens.com/siemens/assets/api/uuid:7460eb69-efa0-4426-9213-af4d3619b567/dffa-b10447-01broschuereiolinkdeengb-144.pdf |




Video: The open communication standard IO-Link

IO-Link is an open communication standard for sensors and actuators – defined by the PROFIBUS User Organization (PNO). IO-Link technology is based on the point-to-point connection of sensors and actuators to the control system.

Parameter and diagnostics data are transmitted in addition to the cyclic operating data for the connected sensors/actuators. The simple, unshielded three-wire cable customary for standard sensors is used for this purpose.




IO-Link in the SIMATIC NET communications landscape

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## Benefits

***Engineering***

- Standardized, open system for greater flexibility (non-Siemens IO-Link devices can be integrated in engineering)
- Uniform, transparent configuring and programming through integrated engineering (SIMATIC STEP 7)
- Unassigned SIMATIC function blocks for easy parameterization, diagnostics and read-out of measured values
- Efficient engineering thanks to pre-integration into SIMATIC HMI
- Low error rate in CAD circuit diagram design as a result of reduced control current wiring

***Installation and commissioning***

- Faster assembly with minimized error rate as a result of reduced control current wiring
- Less space required in the control cabinet
- Low-cost circuitry where there are several feeders by making full use of existing components

***Operation and maintenance***

- High transparency in the system right down to field level and integration into power management systems
- Reduction in downtimes and maintenance times thanks to system-wide diagnostics and faster fault correction
- Support of predictive maintenance
- Shorter changeover times, even for field devices, by means of parameter and recipe management

## Application

IO-Link can be used in the following main applications:

- Easy connection of complex IO-Link sensors/actuators with a large number of parameters and diagnostics data to the control system
- Replacement of sensor boxes for connecting binary sensors with the IO-Link input modules optimized in terms of cabling
- Optimized cable connection of switching devices to the control system
- Simple transmission of energy values from the device to the control system for integration into a user program or power management

In these cases, all the diagnostics data are transmitted to the higher-level control system through IO-Link. The parameter settings can be changed during operation.

***Integration in STEP 7***

Integration of the device configuration in the STEP 7 environment guarantees:

- Quick and easy engineering
- Consistent data storage
- Quick localization and rectification of faults

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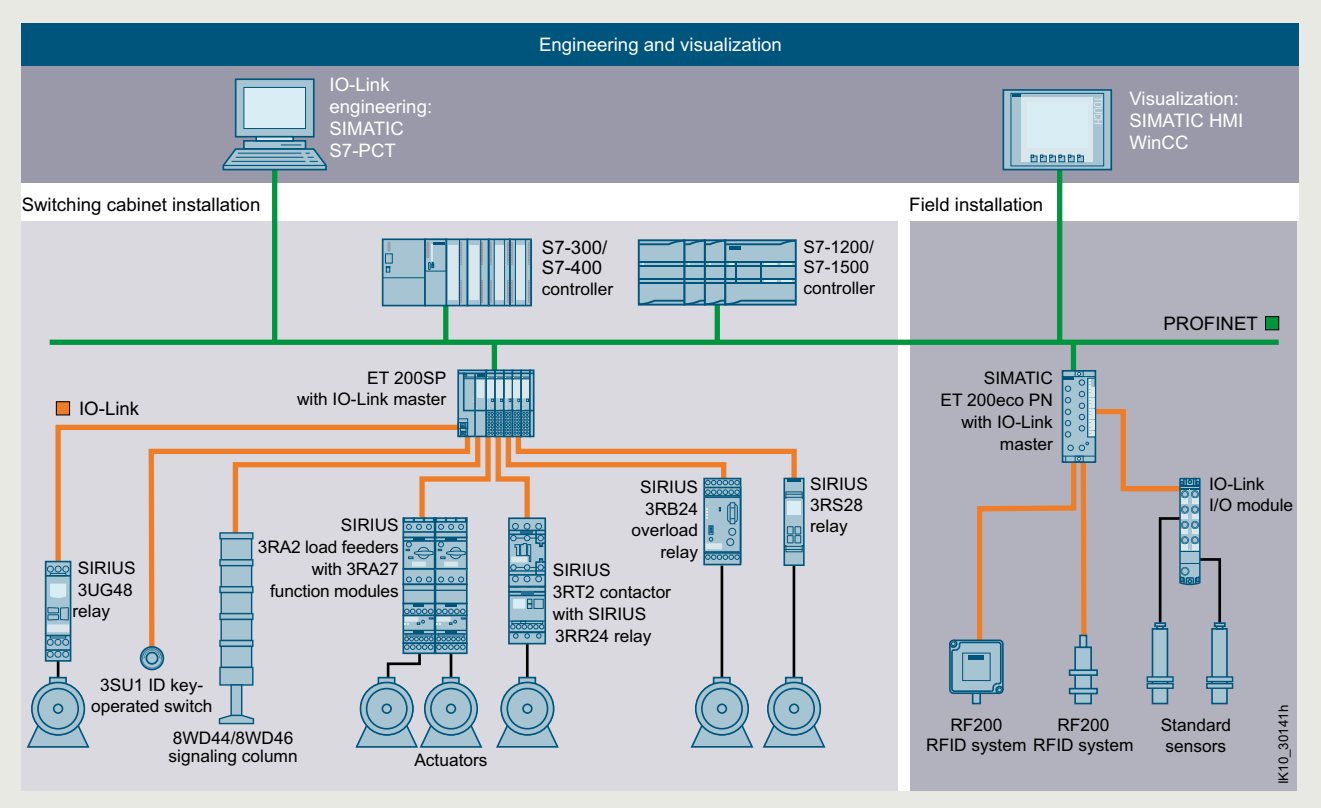
## System components

### Overview

IO-Link product family

To implement communication, a system installation has the following main components:

- An IO-Link master
- One or more IO-Link devices, such as sensors (e.g. RFID systems), actuators or combinations thereof
- A standard three-wire sensor/actuator cable




Example of a configuration with the system components

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### *IO-Link compatibility*

IO-Link ensures compatibility between IO-Link-capable modules and standard modules as follows:

- IO-Link sensors can generally be operated both on IO-Link modules (masters) and standard input modules.
- IO-Link sensors/actuators as well as today's standard sensors/actuators can be used on IO-Link masters.
- If conventional components are used in the IO-Link system, then of course only the standard functions are available at this point.

### *Analog signals*

Another advantage of IO-Link technology is that analog signals are already digitized in the IO-Link sensor itself and are digitally transmitted via IO-Link communication. As the result, faults are prevented and there is no extra cost for cable shielding.

### *Enhancement with IO-Link input modules*

IO-Link compatibility also permits connection of standard sensors/actuators, i.e. conventional sensors/actuators can also be connected to IO-Link. This is particularly cost-effective with the IO-Link input modules, which allow several sensors to be connected at one time via a cable to the controller.

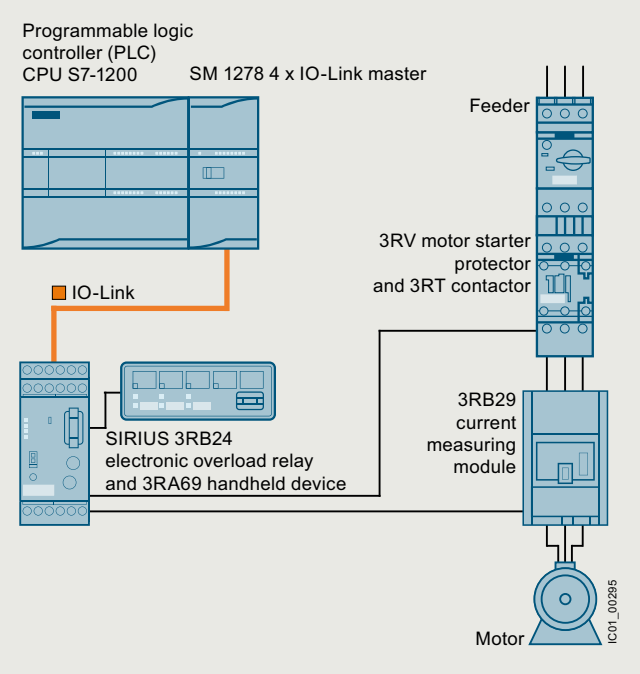
### *Overload relays*

A starter combination, for example, consists of one or more SIRIUS 3RT contactors and one 3RB24 electronic overload relay for IO-Link plus its 3RB29 current measuring module.

3RB24 overload relays with IO-Link are basically designed to provide current-dependent protection for loads against inadmissibly high temperature rises due to overload, phase asymmetry or phase failure.

Direct-on-line starters can, therefore, as shown in the image, be connected to the control system via IO-Link without much wiring. Remote control of connected contactors, current value transmission and immediate remote fault diagnosis are just some examples of the large number of functions that can be implemented with this device.

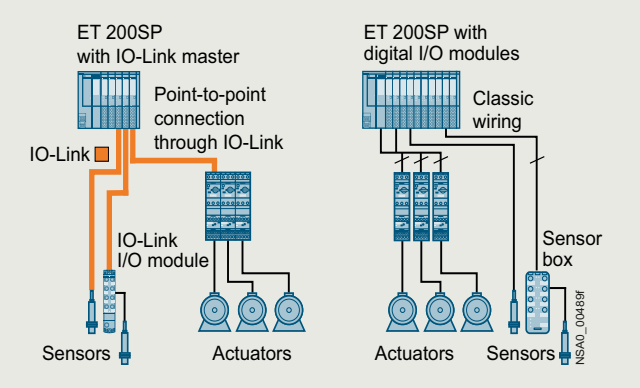
It is also possible to directly address a drive on-site via IO-Link using the optional handheld device.




Connection of an IO-Link-capable overload relay to a SIMATIC S7-1200 controller

### *Load feeders and motor starters*

Through IO-Link it is possible to control not only sensors but also actuators in the form of load feeders and motor starters.




Possibilities of connecting load feeders and motor starters to IO-Link or in the conventional way

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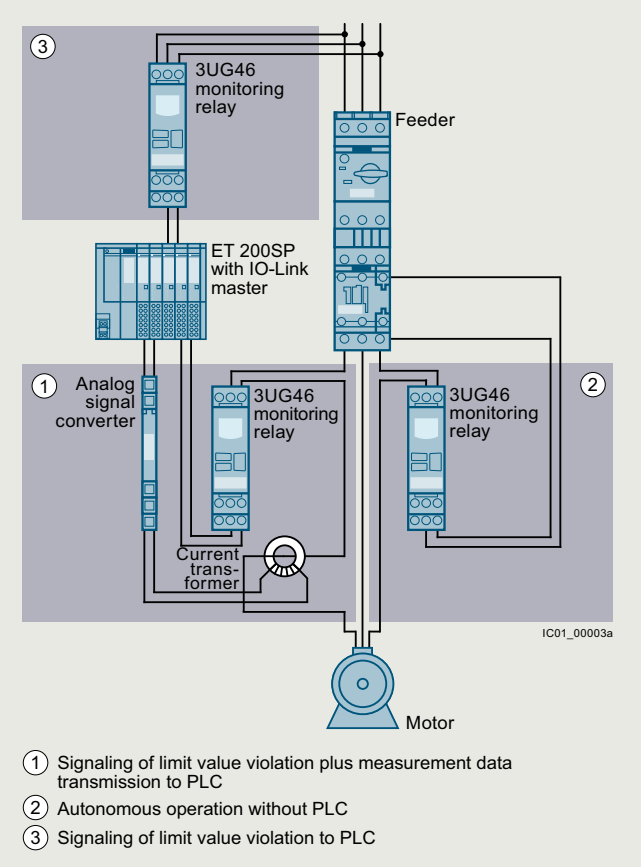
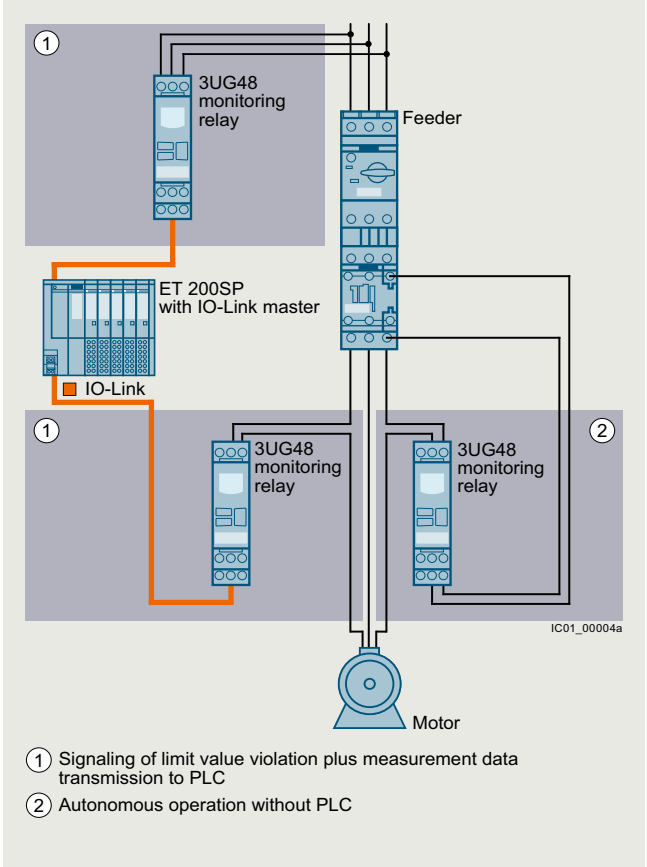
## System components

### *Monitoring relays*

By using monitoring relays with IO-Link it is now possible to send data that has already been recorded and evaluated in the devices directly to the controller. This avoids the use of duplicated sensors.




Possibilities for interfacing conventional 3UG46 monitoring relays (in comparison with 3UG48)




Possibilities of interfacing 3UG48 monitoring relays for IO-Link

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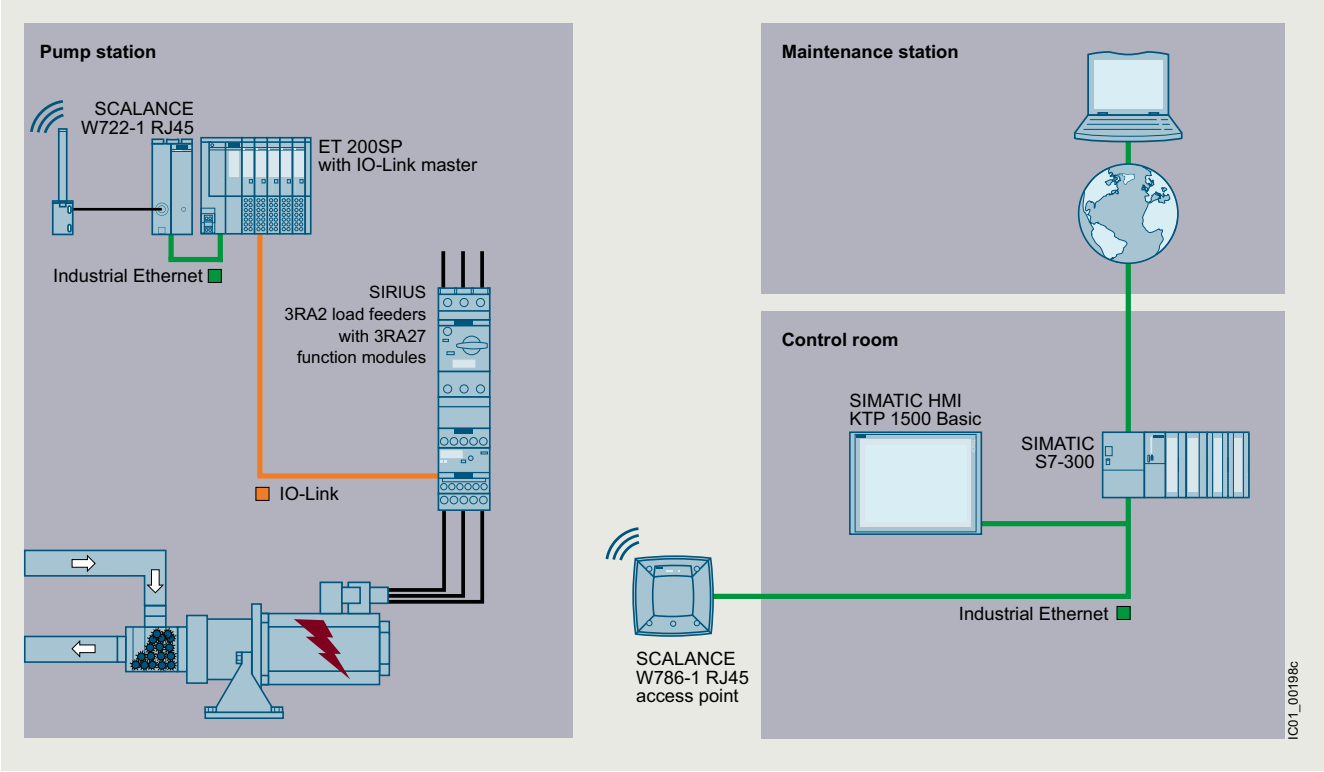
***Wireless communication***

Using an upstream IWLAN client module, such as SCALANCE W722-1 RJ45, allows IO-Link to be integrated into the PROFINET world via a distributed I/O. Possible uses include acting as an alternative to fault-prone cable carrier or collector wire technology.

The individual diagnostics options offered by the various IO-Link devices provide greater transparency for the production process. Just like the parameter data for a device, these diagnostics data can be evaluated remotely using the possibilities offered by SIMATIC. This supports remote maintenance down to the lowest level in the field.




Wireless communication between Industrial Ethernet and IO-Link components

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## System components

### *IO-Link components*

#### IO-Link masters

CM 8xIO-Link for S7-1500

**Masters**

**IO-Link master module for S7-1500**

- CM 8xIO-Link, see page 2/97

**IO-Link master module for S7-1200**

- SM 1278 4xIO-Link, see page 2/98

**IO-Link master module for ET 200SP**

- CM 4xIO-Link V1.1 Standard, see page 2/99

**IO-Link master module for ET 200pro**

- 4 IO-Link HF, see page 2/100

**IO-Link master module for ET 200eco PN**

- IO-Link master 4 IO-L + 8 DI + 4 DO 24 V DC/1.3 A
- IO-Link master 4 IO-L
- IO-Link master 8 IO-L + 4 DI 24 V DC

See page 2/101

**IO-Link master module for ET 200AL**

- CM IO-Link, see page 2/102

For full product range, see Catalog ST 70.

#### IO-Link devices

IO-Link I/O modules

**Detection and output with IO-Link**

**IO-Link digital modules**

IO-Link I/O modules

- IO-Link, digital input modules
  - DI 8 x 24 V DC, 8 x M8
  - DI 16 x 24 V DC, 8 x M12
- IO-Link, digital output modules
  - DQ 8 x 24 V DC/2 A, 8 x M12
- IO-Link, digital input/output modules
  - DIQ 4+DQ 4 x 24 V DC/0.5 A, 8 x M8
  - DIQ 16 x 24 V DC/0.5 A, 8 x M12

See page 2/103

SIRIUS 3RA2711 function module for IO-Link

**Switching with IO-Link**

**Contactors and contactor assemblies**

SIRIUS 3RT contactors, 3-pole up to 250 kW, see page 3/18 onwards

SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW, see page 3/142 onwards

SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW, see page 3/158 onwards

SIRIUS 3RA27 function modules

- For direct-on-line, reversing, and star-delta (wye-delta) starting with IO-Link connection, see page 3/101 onwards

SIRIUS 3RA64 direct-on-line starter

**Motor starters for use in the control cabinet**

SIRIUS 3RA64, 3RA65 compact starters for IO-Link for high-feature applications

- 3RA64 direct-on-line starters, see page 8/67
- 3RA65 reversing starters, see page 8/68

Infeed system for 3RA6, see page 8/76 onwards

Accessories, see page 8/69 onwards

SIRIUS 3RB24 overload relay

**Contactors with IO-Link**

**Overload relays**

SIRIUS 3RB24 electronic overload relays for IO-Link for high-feature applications

- Evaluation modules
- Current measuring modules from 0.3 to 630 A
- In connection with contactors: Controlling direct-on-line, reversing and star-delta (wye-delta) starters via IO-Link
- Full motor protection
- Diagnostics and current value transmission via IO-Link

See page 7/127 onwards

#### IO-Link devices (continued)

SIRIUS 3RR24 monitoring relay

**Monitoring with IO-Link**

**SIRIUS 3RR24 monitoring relays for mounting on 3RT2 contactors for IO-Link**

- Monitoring of current, phase failure, open circuit and phase sequence
- Designed for mounting on 3RT2 contactors
- Terminal supports for stand-alone installation for separate mounting

See page 10/55 onwards

SIRIUS 3UG48 monitoring relay

**SIRIUS 3UG48 monitoring relays for stand-alone installation for IO-Link**

- Monitoring the supply system, voltage, current, power factor and active current, residual current or speed depending on device design
- On/tripping delay time can be adjusted

See page 10/96 onwards

SIRIUS 3RS28 temperature monitoring relay

**SIRIUS 3RS28 temperature monitoring relay for IO-Link**

- Digital device for temperature monitoring with connected sensors
- Two limit values, can be adjusted separately

See page 10/119 onwards

**Actuating and indicating with IO-Link**

SIRIUS ACT 3SU1 ID key-operated switch

**SIRIUS ACT 3SU1 ID key-operated switches for IO-Link**

- Access system and selection system for four authorization levels
- Authentication of groups and persons
- Five ID keys with different coding
- Option for individual coding via IO-Link
- For installation in enclosures or fastening on front plate
- Solid-state module for ID key-operated switches must be ordered separately.

See page 13/12

SIRIUS ACT 3SU1 solid-state module

**SIRIUS ACT 3SU1 solid-state modules for IO-Link**

- Eight digital inputs and outputs possible
- DI and DQ freely selectable (programmable)
- Input and output functions parameterizable
- Connection method (push-in)
- For fastening on front plate or for installation in enclosure, see page 13/89

8WD46 signaling column for IO-Link

**Electronically configurable 8WD46 signaling columns, 70 mm diameter**

Signaling columns for IO-Link, with or without audible signal

- Configuration of signaling column via IO-Link interface (IODD)
- Fast connection of signaling columns to application using 4-pole M12 plugs
- Via the IO-Link interface, the pattern, color and brightness of the individual segments (9 to 15 segments) can be set.
- The audible signal can also be set (volume, type of sound up to 105 dB).

See page 13/163 onwards

8WD44 signaling column

8WD44 IO-Link adapter element

**8WD44 signaling columns, 70 mm diameter**

- Up to five signaling elements can be connected using an IO-Link adapter element
- 24 V DC, diameter 70 mm
- Connection with bayonet mechanism
- For fastening on feet, 8WD44
- Connection elements with screw or spring-loaded terminals or connection element with 5-pole M12 plug

See page 13/170 onwards

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## IO-Link RFID systems

RFID system for IO-Link

**SIMATIC RF200 RFID system in the HF range**

SIMATIC RF210R, SIMATIC RF220R, SIMATIC RF240R, SIMATIC RF250R, SIMATIC RF260R products

- Simple identification tasks such as reading an ID number (UID)
- Reading of user data
- Writing of user data
- No RFID-specific programming, ideal for those new to RFID
- Simple connection via master modules for IO-Link, such as SIMATIC S7-1200, ET 200SP, ET 200pro, ET 200eco PN and ET 200AL
- Use with the tried and tested ISO 15693 transponders (MDS xxx)

See Catalog ID 10

## IO-Link Device Description (IODD)

IODD files for IO-Link

**IODD files**

These files provide the device description for IO-Link devices.

- Comprehensive IODD catalog of SIEMENS IO-Link devices
- Freely available for download from Industry Online Support, see https://support.industry.siemens.com/cs/ww/en/ps/15851

IODDfinder for IO-Link

**IODDfinder**

The entire world of IO-Link under one roof

The IODDfinder is a service provided by the IO-Link community. It is a central cross-vendor database for descriptive files (IODDs). In addition, the platform provides an overview of the available IO-Link devices.

For more information, see https://ioddfinder.io-link.com/#/.

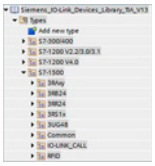
## IO-Link software

S7-PCT

**S7-PCT (Port Configuration Tool)**

Engineering software for configuring the IO-Link master modules for SIMATIC S7-1200, ET 200SP, ET 200MP, ET 200pro, ET 200eco PN and ET 200AL

- Available as a stand-alone version or integrated into STEP 7 (V5.5 SP1 and higher) and TIA (V12 and higher)
- Engineering of the IO-Link devices connected to the master
- Monitoring of the process image of the IO-Link devices
- Open interface for importing further IODDs
- Freely available for download from Industry Online Support, see https://support.industry.siemens.com/cs/ww/en/view/32469496

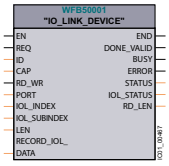


Library for IO-Link (LIOLink)

**Library for IO-Link (LIOLink)**

This library provides blocks and PLC data types to enable communication between the SIMATIC controller and the IO-Link master or IO-Link device.

- Freely available for download from Industry Online Support, see https://support.industry.siemens.com/cs/ww/en/view/82981502




IO-Link device function block

**Application of the device-specific blocks for IO-Link**

This application shows on a specific example how easy it is to connect Siemens IO-Link devices to a SIMATIC S7 CPU using the library for IO-Link (LIOLink).

- Freely available for download from Industry Online Support, see https://support.industry.siemens.com/cs/ww/en/view/90529409

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## IO-Link specification



### Overview

#### *Principles of the IO-Link specification*

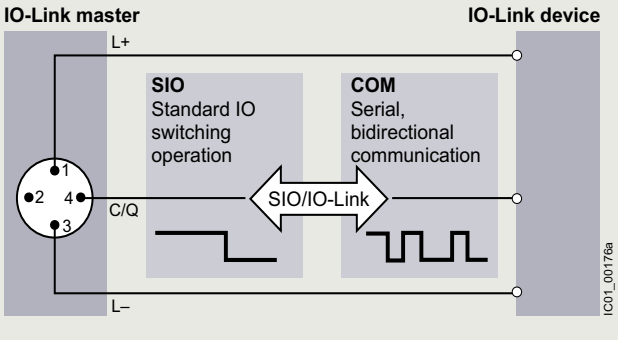
According to the IO-Link specification, communication functions as follows:

- Transmission takes place via an unshielded three-wire cable no more than 20 m long, of the kind normally used for standard sensors.
- Digital communication from 0 to 24 V on the so-called C/Q cable
- Most of the values transmitted are measured values from the sensors
- The sensors and actuators are described by the IO Device Description (IODD)
- As a matter of principle, one IO-Link device can be connected to one IO-Link port of the master (point-to-point connection)
- The transmission rates between IO-Link master and the devices are as follows:
  - Via COM1: 4 800 Bd
  - Via COM2: 38 400 Bd
  - Via COM3: 230 400 Bd
- The average cycle time is 2 ms for the reading/writing of 16 data bits at a transmission rate of 38 400 Bd

#### *IO-Link protocol*

The IO-Link protocol supports both the Standard IO mode (SIO) and the IO-Link communications mode (COM).

**Interface hardware:**
Compatible with sensors according to IEC 60947-5-2 and actuators
Communication and switching possible alternately




The structure of the protocol and its message frames depends on the types of data to be transmitted.

#### *Data types*

The IO-Link specification makes a distinction between the following data types:

Process data

The process data of the devices are transferred cyclically in a data frame, with the process data width defined by the device. Process data of 0 to 32 bytes are possible per device (input and output in each case). The consistency width of the transmission is not fixed and therefore depends on the master.

Value status

Each port has a value status (PortQualifier). The value status indicates whether the process data are valid or invalid. The value status can be transferred cyclically with the process data.

Device data

Device data can be parameters, identification data and diagnostics information. Device data replacement is acyclic and in response to an inquiry from the IO-Link master. Device data can be written into the device (Write) and also read from the device (Read).

Events

When an event occurs, the device sends a signal to the master to report that an event is active. The master then reads out the event. Events can be fault messages (e.g. short circuit) and warnings/maintenance data (e.g. contamination, overheating). Fault messages are transferred from the device via the IO-Link master to the controller or HMI. The IO-Link master can also transfer events and states. Events include, for example, open circuit or communication breakdown.

Device parameters and events are sent independently of the cyclic transmission of process data. The transmissions do not affect or impair each other.

#### *Data storage*

As of specification V1.1, a data storage concept has been created for IO-Link. In this concept, the IO-Link device initiates storage of its data on a higher-level parameter server. In the event that a device is replaced, the parameter server can restore the original parameterization. It is therefore possible to replace the devices without reparameterization.

The IO-Link master contains the parameter server.
The parameter server can also be implemented centrally in the PLC or in a system server. In this case the data must be downloaded to the control system by means of the function blocks provided.

#### *IO-Link masters*

The IO-Link master is the interface to higher-level control systems. The IO-Link master presents itself to the fieldbus as a normal fieldbus node, and is integrated into the appropriate network configurator via the relevant device description (GSD file).

#### *IO Device Description (IODD)*

The IO Device Description (IODD) has been defined to provide a full, transparent description of system characteristics as far as the IO-Link device.

The IODD contains information on communication characteristics, device parameters, identification, process and diagnostics data, and is supplied by the manufacturer. The design of the IODD is the same for all devices from all manufacturers, and is always presented in the same way by the IODD Interpreter Tools. This therefore ensures that the handling is the same for all IO-Link devices, whatever the manufacturer.

#### *New in IO-Link specification V1.1*

The IO-Link specification is currently available in Version 1.1, and standardized in accordance with IEC 61131-9.

Specification V1.1 offers the following new features compared with the previous specification V1.0:

- Transmission of up to 32 bytes of process data in one cycle
- Parameter server function

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## Overview

CM 8xIO-Link master

- Communications module for connecting up to 8 IO-Link devices (three-wire connection) or 8 standard sensors
- Can be used directly downstream of an S7-1500 CPU or distributed in ET 200MP via PROFINET or PROFIBUS
- Powerful diagnostics functions facilitate preventive maintenance to avoid plant standstills
- Simple replacement of sensors/actuators without time-consuming parameterization

## Application

IO-Link makes it easy to change the parameters for manufacturing and processing different product versions and batches, even during CPU runtime, down to the sensor/actuator level. Easy, much more detailed diagnostics are also possible down to the sensor or actuator, including remote diagnostics.

The CM 8xIO-Link enables direct connection of up to 8 IO-Link devices directly to SIMATIC S7-1500 and ET 200MP. This makes external stations unnecessary.

This results in savings on wiring, engineering and commissioning, because everything can be configured centrally with the CPU.

## Design

- Fastening to the S7-1500 DIN rail with a single screw
- 40-pole front connector, optionally with screw terminals or push-in terminals
- Front connector with expandable cable compartment
- Included in the scope of supply:
  - One U connector
  - Front door

## Function

***Overview of functions***

- Suitable for connecting up to 8 IO-Link devices (three-wire connection) or 8 standard sensors
- IO-Link master according to IO-Link specification V1.1
- Data transmission rates COM1 (4.8 kBd), COM2 (38.4 kBd), COM3 (230.4 kBd)
- Parameterizable diagnostics can be set for each channel
- Master backup with "IO_Link_MASTER_8" function block
- Replacement of the IO-Link device (for V1.1 devices only)
- Support for firmware updating of IO-Link devices
- Variable address range for I/O data with up to 240 byte inputs and 240 byte outputs;
  expansion limits:
  - Max. 32 bytes of input data and 32 bytes of output data per port
  - Max. 240 bytes of input data and 240 bytes of output data per module
- Port Qualifier Information (PQI)
- IO-Link port configuration with S7-PCT
- IO-Link port configuration with STEP 7 or GSD (without S7-PCT)
- Standard system functions of SIMATIC ET 200MP:
  - Identification and maintenance data IM0
  - Firmware update
  - Unequivocal, front-side module inscription

## Configuration

The SIMATIC S7-1500 IO-Link master of the S7-1500 can be conveniently configured using the graphical user interface in the free S7 Port Configuration Tool (S7-PCT, V3.5 and higher, SP1).

In addition to this configuration, commissioning without S7-PCT is also possible. In this case, the port is configured by means of either the TIA Portal or GSD file. The following port modes are supported:

- Operation in "IO-Link autostart" mode (default)
- Operation in "IO-Link manual" mode
- Operation as DI
- Deactivated

## Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 6ES7547-1JF00-0AB0 | **CM 8xIO-Link communications module**<br>Communications module for connecting up to 8 IO-Link devices (three-wire connection) or 8 standard sensors | **6ES7547-1JF00-0AB0** | | 1 | 1 unit | 219 |

For more information, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10355273.

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## IO-Link master module for S7-1200 > SM 1278 4xIO-Link master

### Overview

SM 1278 4xIO-Link master

Module for connecting up to four IO-Link devices in accordance with the IO-Link specification V1.1. The IO-Link parameters are configured by means of the Port Configuration Tool (PCT) with version V3.2 and higher.

### Application

The SM 1278 module enables an exchange of data with up to four external IO-Link devices through one three-wire cable each or four standard actuators or standard encoders. Control can be flexibly adapted to the communication partners using the comprehensive parameter assignment options. Since IO-Link is compatible with standard sensors, commercially available sensors compliant with IEC 61131 Type 1 can also be operated on the IO-Link master.

### Design

- Expansion limits
  - Cable length: Max. 20 m
  - Max. 32 bytes of input data and 32 bytes of output data per port
  - Max. 32 bytes of input data and 32 bytes of output data per module

LED displays

- DIAG: Operating state display (green/red) of the module
- C1..C4: Port status display (green) for ports 1, 2, 3 and 4
- Q1..Q4: Channel status display (green) for ports 1, 2, 3 and 4
- F1..F4: Port error display (red) for ports 1, 2, 3 and 4

Depending on the CPU type used, up to 8 SM 1278 units can be used on one S7-1200 CPU.

### Function

Supported functions

- I&M identification data
- Firmware update
- SIO Mode (standard IO mode)
- IO-Link parameter assignment with the S7-PCT interface configuration tool, TIA Portal from V13 and an S7-1200 CPU V4.0 or higher

Supported data transmission rates

- COM1 (4.8 kBd)
- COM2 (38.4 kBd)
- COM3 (230.4 kBd)

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 6ES7278-4BD32-0XB0 | **SM 1278 4xIO-Link master signal module**<br>For connecting up to four IO-Link devices in accordance with the IO-Link specification V1.1 | **6ES7278-4BD32-0XB0** | | 1 | 1 unit | 212 |

### Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 6ES7292-1AG30-0XA0 | **Terminal block (spare part)**<br>7-pole, tin-plated; 4 units | | | | | |
| | • Screw terminals | **6ES7292-1AG30-0XA0** | | 1 | 4 units | 212 |
| | • Push-in terminals | **6ES7292-2AG30-0XA0** | | 1 | 4 units | 212 |

For more information, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10231178.



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## Overview

CM 4xIO-Link

- CM 4xIO-Link communications module
  Serial communications module for connecting up to four IO-Link devices in accordance with the IO-Link specification V1.0 and V1.1. The IO-Link parameters are configured by means of the Port Configuration Tool (PCT) with version V3.0 and higher.
- Time-based IO
  Time-based IO ensures that signals are output with a precisely defined response time. By combination of inputs and outputs, products passing by, for example, can be measured exactly or liquids can be perfectly dosed.
- Supported data transmission rates
  - COM1 (4.8 kBd)
  - COM2 (38.4 kBd)
  - COM3 (230.4 kBd)
- Expansion limits
  - Cable length: Max. 20 m
  - Max. 32 bytes of input data and 32 bytes of output data per port
  - Max. 144 bytes of input data and 128 bytes of output data per module
- ET 200SP system functions supported
  - Exchange of IO-Link device parameters (V1.1 devices only) and of IO-Link master parameters without a PG including automatic backup recovery without an engineering tool by means of redundant parameter storage on the e-coding element
  - Reparameterization during ongoing operation
  - I&M identification data
  - Firmware update
  - PROFIenergy
- Can be plugged onto type A0 BaseUnits (BU) with automatic e-coding
- LED displays
  - DIAG: Operating state display (green/red) of the module
  - C1..C4: Port status display (green) for ports 1, 2, 3 and 4
  - Q1..Q4: Channel status display (green) for ports 1, 2, 3 and 4
  - F1..F4: Port error display (red) for ports 1, 2, 3 and 4
  - PWR: Supply voltage display (green)
- Informative front-side module inscription
  - Plain-text marking of the module type and function class
  - 2D matrix code (article and serial number)
  - Circuit diagram
  - CM module class color coding: Silver
  - Hardware and firmware version
  - Complete article number
- Optional accessories
  - Labeling strips
  - Reference identification label
  - Color-coded label with color code CC04
- Optional system-integrated shield connection

## Application

- The CM 4xIO-Link communications module enables an exchange of data with up to 4 external IO-Link devices through one three-wire cable each.
- Control can be flexibly adapted to the communication partners using the comprehensive parameter assignment options.
- Since IO-Link is compatible with standard sensors, commercially available sensors compliant with IEC 61131 Type 1 can also be operated on the IO-Link master.

## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **CM 4xIO-Link V1.1 Standard communications module**<br>• Serial communications module for connecting up to 4 IO-Link devices, time-based IO, BU type A0, color code CC04 | **6ES7137-6BD00-0BA0** | | 1 | 1 unit | 255 |

6ES7137-6BD00-0BA0

For more information, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10205200.

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## IO-Link master module for ET 200pro > 4 IO-Link HF



### Overview

4 IO-LINK HF

- 45-mm-wide 4 IO-Link HF solid-state module
- 4 IO-Link ports according to IO-Link specification V1.1
- Port class B
- The IO-Link parameters are configured using the Port Configuration Tool (S7-PCT), version V3.4 and higher

### Application

The 4 IO-Link HF solid-state module enables the exchange of data with up to 4 IO-Link devices.

Since IO-Link is compatible with standard sensors, commercially available sensors compliant with IEC 61131 Type 1 can also be operated on the IO-Link master.

### Design

The 4 IO-Link HF solid-state module is used together with the CM IO-LINK 4 X M12 P connection module. Sensors and actuators are integrated using commercially available 3- or 5-pole M12 plugs on the CM IO-Link 4 X M12 P.

IO-Link devices (e.g. sensors) with a class A port are interconnected by means of a three-wire cable. IO-Link devices that require an additional supply voltage and have a class B port (e.g. actuators) are interconnected by means of a five-wire cable.

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 6ES7147-4JD00-0AB0 | **4 IO-Link HF solid-state module**<br>• 4 IO-Link ports according to IO-Link specification V1.1<br>• Port class B<br>• High Feature<br>• Channel diagnostics<br>• Including bus module<br>• Connection module must be ordered separately | **6ES7147-4JD00-0AB0** | | 1 | 1 unit | 250 |

### Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **CM IO-LINK 4 X M12 P connection module**<br>4 M12 sockets for connection of IO-Link devices to ET 200pro 4 IO-Link HF solid-state module | **6ES7194-4CA20-0AA0** | | 1 | 1 unit | 250 |
| **Module labeling plates**<br>For color coding of CM IOs in the colors white, red, blue and green; pack of 100 | **6ES7194-4HA00-0AA0** | | 1 | 500 units | 250 |
| **M12 sealing caps**<br>For protection of unused M12 terminals on ET 200pro | **3RX9802-0AA00** | | 100 | 10 units | 42C |

For more information, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10304039.



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## Overview

ET 200eco PN IO-Link master modules

***IO-Link master with 2 x M12-L coded power connector and 45-mm width***

- IO-Link communications modules for connecting up to 8 IO-Link devices
- IO-Link master with 4 x port class A and 4 x port class B and additional 4 digital inputs
- The IO-Link specifications V1.0 and V1.1 are supported.

***IO-Link master with 2 x M12-A coded power connector and 30-mm width***

- IO-Link communications modules for connecting up to 4 IO-Link devices
- IO-Link master with 4 x port class B
- The IO-Link specifications V1.0 and V1.1 are supported.

***IO-Link master with 2 x M12-A coded power connector and 60-mm width***

- IO-Link communications modules for connecting up to 4 IO-Link devices
- IO-Link master with 4 x port class A and additional 8 digital inputs and 4 digital outputs
- The IO-Link specification V1.0 is supported.

## Application

IO-Link enables easy integration of sensors and actuators from different manufacturers. ET200eco PN IO-Link master I/O devices enable an exchange of data with up to 4 or 8 IO-Link devices.

IO-Link devices (e.g. sensors) with a class A port are interconnected by means of a three-wire cable. IO-Link devices that require an additional supply voltage and have a class B port (e.g. actuators) are interconnected by means of a five-wire cable.

Since IO-Link is compatible with standard sensors, commercially available sensors compliant with IEC 61131 Type 1 can also be operated on the IO-Link master.

With a high degree of protection, ruggedness and small dimensions, the IO-Link master I/O devices are especially well-suited for use at the machine level in confined spaces. They have adjustable parameters and diagnostics functions and can therefore be flexibly adapted to individual process requirements.

## Function

In addition to the general functions of the ET 200eco PN I/O system, the IO-Link masters according to the IO-Link specification V1.1 have some further functions:

- Supported data transmission rates of the IO-Link communication
  - COM1 (4.8 kBd)
  - COM2 (38.4 kBd)
  - COM3 (230.4 kBd)
- Expansion limits
  - Cable length to the IO-Link device: Max. 20 m
  - Max. 32 bytes of input data and 32 bytes of output data per IO-Link port
- Automatic backup of device parameters when the IO-Link device is replaced (V1.1 devices only)
- Reparameterization of the device during operation using a PLC function block
- Master backup using a PLC function block
- Support for firmware updates of IO-Link devices
- Configuration using a GSD file or S7-PCT

## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **ET_200eco PN IO-Link master** | | | | | |
| • 4 IO-L + 8 DI + 4 DO, 24 V DC/1.3 A; 8 x M12, degree of protection IP67, enclosure width 60 mm; for connecting up to 4 IO-Link devices according to IO-Link specification V1.0 and port class A as well as an additional 8 digital inputs and 4 digital outputs | **6ES7148-6JA00-0AB0** | | 1 | 1 unit | 257 |
| • 4 IO-L; 4 x M12, degree of protection IP67, enclosure width 30 mm; for connecting up to 4 IO-Link devices according to IO-Link specifications V1.0 and V1.1 and port class B | **6ES7148-6JD00-0AB0** | | 1 | 1 unit | 257 |
| • 8 IO-L + 4 DI 24 V DC; 8 x M12, degree of protection IP67, enclosure width 45 mm; for connecting up to 8 IO-Link devices according to IO-Link specifications V1.0 and V1.1, 4 x port class A + 4 x port class B as well as an additional 4 digital inputs | **6ES7148-6JG00-0BB0** | | 1 | 1 unit | 257 |

6ES7148-6J.00-0.B0

For more information, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10370454.

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## IO-Link master module for ET 200AL > CM IO-Link



### Overview

CM IO-Link communications module

- CM IO-Link communications module, 30 mm wide
- For connecting up to 4 IO-Link devices in accordance with the IO-Link specifications V1.0 and V1.1 and port class B
- The IO-Link parameters are configured by means of the S7-PCT Port Configuration Tool with version V3.2 and higher.

### Application

The CM IO-Link communications module supports data exchange between up to four IO-Link devices. IO-Link devices (e.g. sensors) with a class A port are interconnected by means of a three-wire cable. IO-Link devices, which require an additional supply voltage and have a class B port (e.g. actuators), are interconnected by means of a five-wire cable.

Since IO-Link is compatible with standard sensors, commercially available sensors compliant with IEC 61131 Type 1 can also be operated on the IO-Link master.

The 30-mm-wide I/O modules are ideally suited for use in extremely confined spaces. They have adjustable parameters and diagnostics functions and can therefore be flexibly adapted to individual process requirements.

The following IO-Link masters are available:

- CM 4xIO-Link communications modules, 4XM12

### Design

The I/O modules have a screw mounting hole at the front and side, and can be mounted in any position. As a result, they are extremely flexible to install on either a level surface or on aluminum mounting rails using sliding blocks.

The CM IO-Link communications module features:

- A backplane bus connection (ET connection) with M8 connection technology for connection to an interface module or other I/O modules
- A power supply connection with M8 connection technology with loop-through
- LED display for port status
- LED display for channel status in SIO mode
- LED display for module status (DIAG)
- LED display for load voltage 2L+ (PWR)
- Labeling plates for channel, module and slot identification
- Integrated cable tie holder
- Meaningful module inscription on front panel:
  - Plain text marking of module type
  - Interface marking
  - LED label
- Meaningful module inscription on side panel:
  - Article number, function level and FW version
  - 2D matrix code (article and serial number)
  - Pin assignments of all interfaces

Labeling plates for channel, module and slot identification are supplied with the modules. These labeling plates can be inscribed using commercially available inscription machines.

### Function

- IO-Link master according to IO-Link specification V1.1
- 4 ports, class B type
- Supported data transmission rates
  - COM1 (4.8 kBd)
  - COM2 (38.4 kBd)
  - COM3 (230.4 kBd)
- Expansion limits
  - Cable length: Max. 20 m
  - Max. 32 bytes of input data and 32 bytes of output data per port
  - Max. 32 bytes of input data and 32 bytes of output data per module
- Automatic backup of device parameters when the IO-Link device is replaced (V1.1 devices only)
- Reparameterization during ongoing operation
- Standardized display and diagnostics concept:
  - Port status display (port activated or deactivated, green LED)
  - Channel status display for signal state in SIO mode (green LED)
  - Module status display (DIAG, red/green LED)
  - Display for monitoring the load voltage 2L+ (PWR, green LED)
- Supported functions:
  - Detailed module-level diagnostics and diagnostic interrupt
  - Identification and maintenance data IM0 ... IM3
  - Firmware update
  - PROFIenergy

### Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **CM IO-Link**<br>CM 4x IO-Link, 4x M12;<br>for connecting up to 4 IO-Link devices in accordance with the IO-Link specifications V1.0 and V1.1 and port class B | **6ES7147-5JD00-0BA0** | | 1 | 1 unit | 254 |

6ES7147-5JD00-0BA0

For more information, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10233997.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

IO-Link I/O modules

The IO-Link communication standard enables and standardizes communication between machine and plant control systems on one hand and sensors, actuators and other field devices on the other.

The IO-Link I/O modules permit simple connection of binary standard sensors and actuators and the signals and power supply are transmitted via IO-Link (IO-Link master).

The IO-Link IO modules can be connected to any IO-Link master and distributed I/O units that are independent of the fieldbus can be built. The universal deployability of the IO-Link DIQ I/O modules provides additional versatility.

With the ET 200AL IO-Link I/O modules, a rounded portfolio of digital input, digital output and digital input/output modules is available in the design and with the ET 200AL system features.

## Application

IO-Link can provide advantages as a communications system, e.g. when complex sensors and actuators are to be used. These IO-Link devices can be connected via an IO-Link master and be integrated into the automation system with reduced effort, e.g. for cabling.

If such an IO-Link master is available, further binary sensor/actuator signals can be integrated in the field via the IO-Link I/O modules without great effort. IO-Link masters can be expanded with the IO-Link I/O modules to form a modular I/O station, with which distributed signals can be detected and output in the plant or machine.

The following IO-Link I/O modules are available:

- IO-Link, digital input module DI 8 x 24 V DC, 8 x M8
- IO-Link, digital input module DI 16 x 24 V DC, 8 x M12
- IO-Link, digital output module DQ 8 x 24 V DC/2 A, 8 x M12
- IO-Link, digital input/output module DIQ 4+DQ 4 x 24 V DC/0.5 A
- IO-Link, digital input/output module DIQ 16 x 24 V DC/0.5 A

## Function

- Standardized display and diagnostics concept:
  - Channel status display for signal status log. "0" and log. "1" (green LED)
  - Module status display (DIAG, red/green LED)
  - Display for monitoring the load voltage 2L+ (PWR, green LED, only modules with outputs)
- Supported functions:
  - Channel-specific parameterization
  - Detailed module-level diagnostics and diagnostic interrupt
  - Safety-related tripping of digital outputs according to IEC 62061 (SILCL2) and ISO 13849-1 (Cat 3/PL d)
  - IO-Link V1.1
  - Support for the "general profile" of IO-Link
  - Firmware update

### *Engineering*

The engineering of the IO-Link I/O modules is performed via IO-Link engineering of the relevant IO-Link master. For this purpose, one device description file (IODD) per IO-Link I/O module is provided.

## Selection and ordering data

6ES714.-5..00-0BL0

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **IO-Link, digital input modules** | | | | | |
| Degree of protection IP67 | | | | | |
| • DI 8 x 24 V DC, 8 x M8 | **6ES7141-5BF00-0BL0** | | 1 | 1 unit | 250 |
| • DI 16 x 24 V DC, 8 x M12 | **6ES7141-5AH00-0BL0** | | 1 | 1 unit | 250 |
| **IO-Link, digital output modules** | | | | | |
| Degree of protection IP67 | | | | | |
| • DQ 8 x 24 V DC/2 A, 8 x M12 | **6ES7142-5AF00-0BL0** | | 1 | 1 unit | 250 |
| **IO-Link, digital input/output modules** | | | | | |
| Degree of protection IP67 | | | | | |
| • DIQ 4+DQ 4 x 24 V DC/0.5 A, 8 x M8 | **6ES7143-5BF00-0BL0** | | 1 | 1 unit | 250 |
| • DIQ 16 x 24 V DC/0.5 A, 8 x M12 | **6ES7143-5AH00-0BL0** | | 1 | 1 unit | 250 |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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2

## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 6XV1801-2C... | **Control connecting cables M12-180/M12-180**<br>Flexible 5-core cable, assembled with an A-coded, 5-pole M12 plug and A-coded, 5-pole M12 socket, both ends with a straight cable outlet, for connecting IO-Link sensors/actuators | | | | | |
| | • Cable length 1 m | **6XV1801-2CH10** | | 1 | 1 unit | 5K2 |
| | • Cable length 5 m | **6XV1801-2CH50** | | 1 | 1 unit | 5K2 |
| | • Cable length 15 m | **6XV1801-2CN15** | | 1 | 1 unit | 5K2 |
| 6XV1801-6GH50 | **Power connecting cables M12-90/M12-90**<br>Flexible 4-core power supply cable, assembled with an L-coded 4-pole M12 plug and L-coded, 4-pole M12 socket, both ends with 90° angled connectors, for the 24-V DC device power supply | | | | | |
| | • Cable length 5 m | **6XV1801-6GH50** | | 1 | 1 unit | 5K1 |
| 3RK1902-4BA00-5AA0 | **M12 connector**<br>Can be assembled, for connecting actuators or sensors, 5-pole, screw connection, max. 0.75 mm², A-coded, max. 4 A | | | | | |
| | • Straight | **3RK1902-4BA00-5AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4DA00-5AA0 | • Angled | **3RK1902-4DA00-5AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4H...-5AA0 | **Control cable**<br>Assembled at one end with 1 x M12 angled plug, 5-pole, 5 x 0.34 mm², A-coded, max. 4 A, PUR sheath, black | | | | | |
| | • Cable length 5 m | **3RK1902-4HB50-5AA0** | | 1 | 1 unit | 42D |
| | • Cable length 10 m | **3RK1902-4HC01-5AA0** | | 1 | 1 unit | 42D |
| 3RK1901-1KA00 | **AS-Interface sealing caps** | | | | | |
| | • For free M12 sockets | **3RK1901-1KA00** | | 100 | 10 units | 42C |
| 3RK1901-1PN00 | • For free M8 sockets | **3RK1901-1PN00** | | 100 | 10 units | 42C |

For more information, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10383153.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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**Price groups**
PG 41B, 41E, 41H, 42F

3/2 **Introduction**

**Power contactors for switching motors**
3/8 General data
3/18 SIRIUS 3RT contactors, 3-pole up to 250 kW
Accessories for SIRIUS 3RT contactors and SIRIUS 3RH2 contactor relays
3/69 - General data
3/81 - Auxiliary switches, instantaneous NEW
3/95 - Auxiliary switches, delayed
3/97 - Surge suppressors
3/99 - Modules for contactor control
3/104 - Link modules
3/109 - Connection modules/adapters
3/112 - Covers
3/113 - Miscellaneous accessories
Spare parts for SIRIUS 3RT contactors and SIRIUS 3RH2 contactor relays
3/116 - Solenoid coils
3/119 - Contacts and arc chutes
3/120 SIRIUS 3RT12 and 3TF6 vacuum contactors
3/133 Accessories and spare parts for SIRIUS 3RT12 and 3TF6 vacuum contactors
3/138 3TG10 power relays/miniature contactors

**Reversing contactor assemblies**
3/142 SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW
3/153 Reversing contactor assemblies consisting of SIRIUS 3RT1 and 3TF6 contactors, up to 335 kW

**Contactor assemblies for star-delta (wye-delta) starting**
3/158 SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW
3/171 Contactor assemblies for star-delta (wye-delta) starting consisting of SIRIUS 3RT and 3TF6 contactors, up to 710 kW

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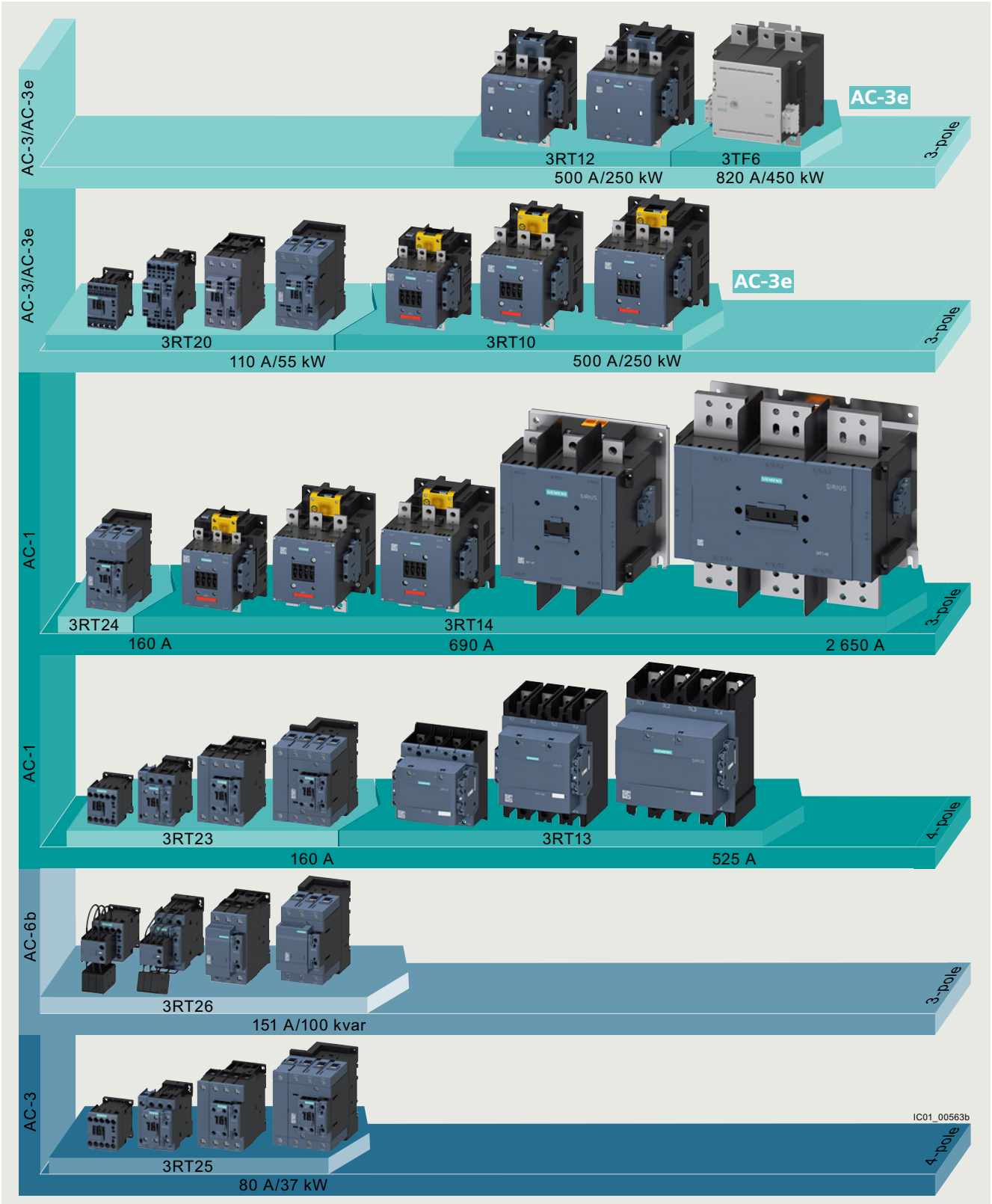
## Overview




Overview of the 3RT and 3TF contactors

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**More information**

Homepage, see www.siemens.com/sirius
Industry Mall, see www.siemens.com/product?3RT_3TK_3TC
Conversion tool, see www.siemens.com/conversion-tool
TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Contactor

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | **S00** | | | | **S0** | | | | | |
| Type | | 3RT201 | | | | 3RT202 | | | | | |
| **3RT20 contactors** | | | | | | | | | | | |
| Type | | **3RT2015** | **3RT2016** | **3RT2017** | **3RT2018** | **3RT2023** | **3RT2024** | **3RT2025** | **3RT2026** | **3RT2027** | **3RT2028** |
| AC, DC operation | | (p. 3/47, 3/52 ... 3/55) | | | | (p. 3/48, 3/49, 3/56 ... 3/58, 3/60) | | | | | |
| **AC-3 and AC-3e** | | | | | | | | | | | |
| $I_e$/AC-3/AC-3e/400 V | A | 7 | 9 | 12 | 16 | 9 | 12 | 17 | 25 | 32 | 38 |
| **400 V** | **kW** | **3** | **4** | **5.5** | **7.5** | **4** | **5.5** | **7.5** | **11** | **15** | **18.5** |
| 230 V | kW | 1.5 | 2.2 | 3 | 4 | 2.2 | 3 | 4 | 5.5 | 7.5 | 11 |
| 500 V | kW | 6 | 7.7 | 9.2 | 12.4 | 9 | 12 | 17 | 18 | 32 | 32 |
| 690 V | kW | 4 | 5.5 | 5.5 | 7.5 | 7.5 | 7.5 | 11 | 11 | 18.5 | 18.5 |
| 1 000 V | kW | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **AC-4** (at $I_a$ = 6 x $I_e$) | | | | | | | | | | | |
| **400 V** | **kW** | **3** | **4** | **4** | **5.5** | **4** | **5.5** | **7.5** | **7.5** | **11** | **11** |
| 400 V (200 000 operating cycles) | kW | 1.15 | 2 | 2 | 2.5 | 2 | 2.6 | 3.5 | 4.4 | 6 | 6 |
| **AC-1** (40 °C, ≤ 690 V) | | | | | | | | | | | |
| $I_e$ | **A** | **18** | **22** | **22** | **22** | **40** | **40** | **40** | **40** | **50** | **50** |
| **Accessories for contactors** | | | | | | | | | | | |
| **Auxiliary switches** | • On the front | **3RH29, 3RA28** (p. 3/87 ... 3/95) | | | | **3RH29, 3RA28** (p. 3/87 ... 3/95) | | | | | |
| | • Lateral | **3RH29** (p. 3/91 ... 3/94) | | | | **3RH29** (p. 3/91 ... 3/94) | | | | | |
| **Function modules** | • Direct-on-line starting, star-delta (wye-delta) starting | **3RA281.** (p. 3/100) | | | | **3RA281.** (p. 3/100) | | | | | |
| | • IO-Link, AS-Interface | **3RA271.-.AA00** (p. 3/101, 3/102) | | | | **3RA271.-.AA00** (p. 3/101, 3/102) | | | | | |
| **Surge suppressors** | | **3RT2916** (p. 3/97, 3/98) | | | | **3RT2926** (p. 3/97, 3/98) | | | | | |
| **3RU2 and 3RB3 overload relays** | | | | | | | | | | | |
| **3RU thermal overload relays** | | **3RU2116** 0.11 ... 16 A (p. 7/89) | | | | **3RU2126** 1.8 ... 40 A (p. 7/89) | | | | | |
| **3RB electronic overload relays** | | | | | | | | | | | |
| • For standard applications | | **3RB3016, 3RB3113** 0.1 ... 16 A (p. 7/102 ... 7/104) | | | | **3RB3026, 3RB3123** 0.1 ... 40 A (p. 7/102 ... 7/104) | | | | | |
| • For High-Feature applications | | **3RB22, 3RB23 and 3RB24 with current measuring module** (p. 7/125, 7/133) | | | | **3RB22, 3RB23 and 3RB24 with current measuring module** (p. 7/125, 7/133) | | | | | |
| | | **3RB2906-2.G1** 0.3 ... 25 A (p. 7/137) | | | | **3RB2906-2.G1** 0.3 ... 25 A (p. 7/137) | | | | | |
| **3RV20 motor starter protectors** | | | | | | | | | | | |
| **Motor starter protectors** | | **3RV2011** 0.11 ... 16 A (p. 7/27) | | | | **3RV2021** 0.45 ... 40 A (p. 7/28) | | | | | |
| **Link modules** | | **3RA1921, 3RA2911** (p. 7/61) | | | | **3RA2921** (p. 7/61) | | | | | |
| **3RA23 reversing contactor assemblies** | | | | | | | | | | | |
| **Complete units** | Type | **3RA2315** | **3RA2316** | **3RA2317** | **3RA2318** | **--** | **3RA2324** | **3RA2325** | **3RA2326** | **3RA2327** | **3RA2328** |
| | | (p. 3/149) | | | | | (p. 3/150) | | | | |
| **400 V** | **kW** | **3** | **4** | **5.5** | **7.5** | | **5.5** | **7.5** | **11** | **15** | **18.5** |
| **Assembly kits/wiring modules** | | **3RA2913-2AA.** (p. 3/104) | | | | **--** | **3RA2923-2AA.** (p. 3/104) | | | | |
| **Function modules** | | **3RA271.-.BA00** (p. 3/101) | | | | **--** | **3RA271.-.BA00** (p. 3/101) | | | | |
| **3RA24 contactor assemblies for star-delta (wye-delta) starting** | | | | | | | | | | | |
| **Complete units** | Type | **3RA2415** | **3RA2416** | **3RA2417** | | **3RA2423** | | **3RA2425** | **3RA2426** | | |
| | | (p. 3/167) | | | | (p. 3/168) | | | | | |
| **400 V** | **kW** | **5.5** | **7.5** | **11** | | **11** | | **15/18.5** | **22** | | |
| **Assembly kits/wiring modules** | | **3RA2913-2BB.** (p. 3/105) | | | | **3RA2923-2BB.** (p. 3/105) | | | | | |
| **Function modules** | | **3RA271.-.CA00** (p. 3/101) | | | | **3RA271.-.CA00** (p. 3/101) | | | | | |

Note:

Safety characteristics for contactors, see "Standards and approvals", page 16/9.

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## Introduction

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Size | | **S2** | | | | **S3** | | |
| Type | | 3RT203 | | | | 3RT204 | | |
| **3RT20 contactors** | | | | | | | | |
| Type | | **3RT2035** | **3RT2036** | **3RT2037** | **3RT2038** | **3RT2045** | **3RT2046** | **3RT2047** |
| AC, DC operation | | (p. 3/50, 3/59, 3/61) | | | | (p. 3/51, 3/59, 3/63) | | |
| **AC-3 and AC-3e** | | | | | | | | |
| $I_e$/AC-3/AC-3e/400 V | A | 41 | 50 | 65 | 80 | 80 | 95 | 110 |
| **400 V** | **kW** | **18.5** | **22** | **30** | **37** | **37** | **45** | **55** |
| 230 V | kW | 11 | 15 | 18.5 | 22 | 22 | 22 | 30 |
| 500 V | kW | 41 | 51 | 65 | 80 | 80 | 95 | 110 |
| 690 V | kW | 22 | 22 | 37 | 45 | 55 | 75 | 90 |
| 1 000 V | kW | -- | -- | -- | -- | 37 | 37 | 37 |
| **AC-4** (at $I_a$ = 6 x $I_e$) | | | | | | | | |
| **400 V** | **kW** | **18.5** | **22** | **30** | **37** | **37** | **45** | **55** |
| 400 V (200 000 operating cycles) | kW | 11.6 | 12.6 | 14.7 | 15.8 | 17.9 | 22 | 24.3 |
| **AC-1** (40 °C, ≤ 690 V) | | | | | | | | |
| **$I_e$** | **A** | **60** | **70** | **80** | **90** | **125** | **130** | **130** |
| **Accessories for contactors** | | | | | | | | |
| **Auxiliary switches** • On the front | | **3RH29, 3RA28** | | | (p. 3/87 ... 3/95) | **3RH29, 3RA28** | | (p. 3/87 ... 3/95) |
| **Auxiliary switches** • Lateral | | **3RH29** | | | (p. 3/91 ... 3/94) | **3RH29** | | (p. 3/91 ... 3/94) |
| **Function modules** • Direct-on-line starting | | **3RA283.** | | | (p. 3/100) | **3RA283.** | | (p. 3/100) |
| **Function modules** • IO-Link, AS-Interface | | **3RA271.-.AA00** | | | (p. 3/101, 3/102) | **3RA271.-.AA00** | | (p. 3/101, 3/102) |
| **Surge suppressors** | | **3RT2936** | | | (p. 3/97, 3/98) | **3RT2936, 3RT2946** | | (p. 3/97, 3/98) |
| **Terminal covers** | | **3RT2936-4EA2** | | | (p. 3/112) | **3RT2946-4EA2** | | (p. 3/112) |
| **3RU2 and 3RB overload relays** | | | | | | | | |
| **3RU thermal overload relays** | | **3RU2136** | 11 ... 80 A | | (p. 7/90) | **3RU2146** | 28 ... 100 A | (p. 7/90) |
| **3RB electronic overload relays** | | | | | | | | |
| • For standard applications | | **3RB3036, 3RB3133** | 12.5 ... 80 A | | (p. 7/102 ... 7/104) | **3RB3046, 3RB3143** | 12.5 ... 115 A | (p. 7/102 ... 7/104) |
| • For High-Feature applications | | **3RB22, 3RB23 and 3RB24 with current measuring module 3RB2906-2JG1** | 10 ... 100 A | | (p. 7/125, 7/133) (p. 7/137) | **3RB22, 3RB23 and 3RB24 with current measuring module 3RB2906-2JG1** | 10 ... 100 A | (p. 7/125, 7/133) (p. 7/137) |
| **3RV20 motor starter protectors** | | | | | | | | |
| **Motor starter protectors** | | **3RV2031, 3RV2032** | | 9.5 ... 80 A | (p. 7/30) | **3RV2041, 3RV2042** | 28 ... 100 A | (p. 7/30) |
| **Link modules** | | **3RA2931** | | | (p. 7/61) | **3RA1941** | | (p. 7/61) |
| **3RA23 reversing contactor assemblies** | | | | | | | | |
| **Complete units** | Type | **3RA2335** (p. 3/151) | **3RA2336** | **3RA2337** | **3RA2338** | **3RA2345** (p. 3/152) | **3RA2346** | **3RA2347** |
| **400 V** | **kW** | **18.5** | **22** | **30** | **37** | **37** | **45** | **55** |
| **Assembly kits/wiring modules** | | **3RA2933-2AA.** | | | (p. 3/104) | **3RA2943-2AA.** | | (p. 3/104) |
| **Function modules** | | **3RA271.-.BA00** | | | (p. 3/101) | **3RA271.-.BA00** | | (p. 3/101) |
| **Mechanical interlocks** | | **3RA2934-2B** | | | (p. 3/108) | **3RA2934-2B** | | (p. 3/108) |
| **3RA24 contactor assemblies for star-delta (wye-delta) starting** | | | | | | | | |
| **Complete units** | Type | **3RA2434** (p. 3/169) | **3RA2435** | **3RA2436** | **3RA2437** | **3RA2444** (p. 3/170) | **3RA2445** | **3RA2446** |
| **400 V** | **kW** | **22/30** | **37** | **45** | **55** | **55** | **75** | **90** |
| **Assembly kits/wiring modules** | | **3RA2933-2BB./-2C** | | | (p. 3/105) | **3RA2943-2BB./-2C** | | (p. 3/105) |
| **Function modules** | | **3RA271.-.CA00** | | | (p. 3/101) | **3RA271.-.CA00** | | (p. 3/101) |

Note:

Safety characteristics for contactors, see "Standards and approvals", page 16/9.

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Size | | **S6** | | | **S10** | | | **S12** | |
| Type | | 3RT105 | | | 3RT1.6 | | | 3RT1.7 | |
| **3RT10 contactors · 3RT12 vacuum contactors** | | | | | | | | | |
| Type | | **3RT1054** | **3RT1055** | **3RT1056** | **3RT1064** | **3RT1065** | **3RT1066** | **3RT1075** | **3RT1076** |
| AC, DC operation | | (p. 3/64 ... 3/66) | | | (p. 3/64 ... 3/66) | | | (p. 3/64 ... 3/66) | |
| Type | | -- | -- | -- | **3RT1264** (p. 3/130) | **3RT1265** | **3RT1266** | **3RT1275** (p. 3/130) | **3RT1276** |
| **AC-3 and AC-3e** | | | | | | | | | |
| $I_e$/AC-3/AC-3e/400 V | A | 115 | 150 | 185 | 225 | 265 | 300 | 400 | 500 |
| **400 V** | **kW** | **55** | **75** | **90** | **110** | **132** | **160** | **200** | **250** |
| 230 V | kW | 37 | 45 | 55 | 55 | 75 | 90 | 132 | 160 |
| 500 V | kW | 75 | 90 | 132 | 160 | 160 | 200 | 250 | 315 (355)[1] |
| 690 V | kW | 110 | 132 | 160 | On request | On request | On request | 400 | 400 (500)[1] |
| 1 000 V | kW | 75 | 90 | 90 | 90 (315)[1] | 132 (355)[1] | 132 (400)[1] | 250 (560)[1] | 250 (710)[1] |
| **AC-4** (at $I_a$ = 6 x $I_e$) | | | | | | | | | |
| **400 V** | **kW** | **55** | **75** | **90** | **110** | **132** | **160** | **200** | **250** |
| 400 V (200 000 operating cycles) | kW | 29 | 38 | 45 | 54 (78)[1] | 66 (93)[1] | 71 (112)[1] | 84 (140)[1] | 98 (161)[1] |
| **AC-1** (40 °C, ≤ 690 V) | | | | | | | | | |
| **$I_e$** | **A** | **160** | **185** | **215** | **275 (330)**[1] | **330** | **330** | **430 (610)**[1] | **610** |
| **3RT14 AC-1 contactors** | | | | | | | | | |
| Type | | **3RT1456** (p. 4/17, 4/18) | | | **3RT1466** | **3RT1467** (p. 4/17, 4/18) | | **3RT1476** | |
| **$I_e$/AC-1/40 °C/≤ 690 V** | **A** | **275** | | | **400** | **500** | | **690** | |
| **Accessories for contactors** | | | | | | | | | |
| **Auxiliary switches** • On the front | | **3RH19, 3RT1926** (p. 3/90, 3/96) | | | | | | | |
| **Auxiliary switches** • Lateral | | **3RH19** (p. 3/92 ... 3/94) | | | | | | | |
| **Surge suppressors** | | **3RT1956-1C** (RC element) (p. 3/98) | | | | | | | |
| **Terminal covers** | | **3RT1956-4EA.** (p. 3/112) | | | **3RT1966-4EA.** (p. 3/112) | | | | |
| **Box terminal blocks** | | **3RT1955-4G, 3RT1956-4G** (p. 3/110) | | | **3RT1966-4G** (p. 3/110) | | | | |
| **3RB2 overload relays** | | | | | | | | | |
| **3RB electronic overload relays** | | | | | | | | | |
| • For standard applications | | **3RB2056** 50 ... 200 A (p. 7/114, 7/115) **3RB2153** 50 ... 200 A (p. 7/116) | | | **3RB2066** 55 ... 250 A or 160 ... 630 A **3RB2163** 55 ... 250 A or 160 ... 630 A | | | | |
| • For High-Feature applications | | **3RB22, 3RB23 and 3RB24** (p. 7/125, 7/133) **with current measuring module 3RB2956-2TH2** (p. 7/137) 20 ... 200 A | | | **3RB22, 3RB23 and 3RB24** (p. 7/125, 7/133) **with current measuring module 3RB2966-2WH2** (p. 7/137) 63 ... 630 A | | | | |
| **3VA2 molded case motor starter protectors** | | | | | | | | | |
| **Molded case motor starter protectors** | | (See Catalog LV 10) | | | | | | | |
| • for 3RT10 | | **3VA21** | **3VA22** | **3VA22** | **3VA23** | **3VA23** | **3VA24** | **3VA24** | **3VA25** |
| • for 3RT12 | | **3VA21** | **3VA22** | **3VA22** | **3VA23** | **3VA23** | **3VA24** | **3VA24** | **3VA25** |
| **Reversing contactor assemblies**[2] | | | | | | | | | |
| **Complete units** | Type | -- | | | | | | | |
| **400 V** | **kW** | **55** | **75** | **90** | **110** | **132** | **160** | **200** | **250** |
| **Assembly kits/wiring modules** | | **3RA1953-2A** (p. 3/104) | | | **3RA1963-2A** (p. 3/104) | | | **3RA1973-2A** (p. 3/104) | |
| **Mechanical interlocks** | | **3RA1954-2A** (p. 3/108) | | | | | | | |
| **Contactor assemblies for star-delta (wye-delta) starting**[2] | | | | | | | | | |
| **Complete units** | Type | -- | | | | | | | |
| **400 V** | **kW** | -- | | | | | | | |
| **Assembly kits/wiring modules** | | **3RA1953-2B** (p. 3/106) | | | **3RA1963-2B** (p. 3/106) | | | **3RA1973-2B** (p. 3/106) | |

[1] Value applies for 3RT12 contactors.

[2] Contactor assemblies for customer assembly:
- Reversing contactor assemblies, see pages 3/154 to 3/156,
- Contactor assemblies for star-delta (wye-delta) starting, see pages 3/172 to 3/177.

Note:

Safety characteristics for contactors, see "Standards and approvals", page 16/9.

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## Introduction

| | | | |
|---|---|---|---|
| Size | | **14** | **14** |
| Type | | 3TF68 | 3TF69 |
| **3TF68/3TF69 vacuum contactors** | | | |
| Type | | **3TF68** (p. 3/131, 3/132) | **3TF69** (p. 3/131, 3/132) |
| **AC-3 and AC-3e** | | | |
| $I_e$/AC-3/AC-3e/690 V | A | 630 | 820 (630)[1] |
| **400 V** | **kW** | **335** | **450 (335)**[1] |
| 230 V | kW | 200 | 260 (200)[1] |
| 690 V | kW | 600 | 800 (600)[1] |
| 1 000 V | kW | 600 | 800 |
| **AC-4** (at $I_a = 6 \times I_e$) | | | |
| **400 V** | **kW** | **355** | **400** |
| 400 V (200 000 operating cycles) | kW | 168 | 191 |
| **AC-1** (40 °C, ≤ 690 V) | | | |
| **$I_e$** | **A** | **700** | **910** |
| **Accessories for contactors** | | | |
| **Auxiliary switches** | | | |
| • Lateral | | **3TY7561** (p. 3/133) | |
| **Surge suppressors** | | **3TX7572** (p. 3/134) | |
| **Terminal covers** | | **3TX7686, 3TX7696** (p. 3/134) | |
| **3RB2 overload relays** | | | |
| **3RB electronic overload relays** | | | |
| • For standard applications | | **3RB2066, 3RB2163** 55 ... 250 A or 160 ... 630 A (p. 7/114, 7/115) (p. 7/116) | **3RB22, 3RB23 and 3RB24 with current measuring module 3RB2906-2.G1 with 3UF series transformer up to 820 A** (p. 7/125, 7/133) (p. 7/137) 63 ... 820 A |
| • For High-Feature applications | | **3RB22, 3RB23 and 3RB24 with current measuring module 3RB2966-2WH2** (p. 7/125, 7/133) (p. 7/137) 63 ... 630 A | |
| **3VA2 molded case motor starter protectors** | | | |
| **Molded case motor starter protectors** | | **3VA25** (See Catalog LV 10) | |
| **Reversing contactor assemblies**[2] | | | |
| **Complete units** | Type | **--** | |
| **400 V** | **kW** | **335** | |
| **Assembly kits/wiring modules** | | **3TX7680-1A** (p. 3/135) | |
| **Mechanical interlocks** | | **3TX7686-1A** (p. 3/135) | |
| **Contactor assemblies for star-delta (wye-delta) starting**[2] | | | |
| **Complete units** | Type | **--** | |
| **400 V** | **kW** | **710** | |
| **Assembly kits/wiring modules** | | **3TX7680-1B** (p. 3/135) | |

[1] Value applies for utilization category AC-3e.

[2] Contactor assemblies for customer assembly:
- Reversing contactor assemblies, see page 3/157,
- Contactor assemblies for star-delta (wye-delta) starting, see page 3/178.

Note:

Safety characteristics for contactors, see "Standards and approvals", page 16/9.

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| Type | | | 3TG10 |
|---|---|---|---|
| **3TG10 power relays/miniature contactors** | | | |
| Number of main contacts | | | 4 |
| AC, DC operation | | | (p. 3/138) |
| **AC-1** | | | |
| **$I_e$ at 400 V** | 55 °C | **A** | **20** |
| ***P* at 400 V** | | **kW** | **13** |
| At 230 V | | kW | 7.5 |
| **AC-3** | | | |
| $I_e$ up to 400 V | | A | 8.4 |
| ***P* at 400 V** | | **kW** | **4** |
| **AC-3e** | | | |
| $I_e$ up to 400 V | | A | 6.4 |
| ***P* at 400 V** | | **kW** | **3** |

### *Connection methods*

The 3RT contactors are available with screw terminals (box terminals or flat connectors) or with spring-loaded terminals.

The 3TG10 power relays/miniature contactors are available with screw terminals or flat connectors.

Screw terminals

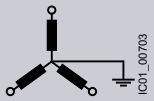
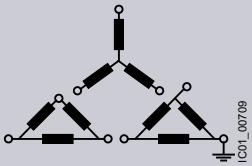
Spring-loaded terminals

Flat connectors

The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds.

### *Voltage data*

The data for 3-phase power systems according to IEC 60947-4-1 are valid for the following line system configurations:

| **Voltage data $U_e$** | **Line system configurations** | |
|---|---|---|
| | **Three-phase four-wire systems**   | **Three-phase three-wire systems**   |
| V | V | V |
| 230 | -- | 230 |
| 400 | 230/400 | 400 |
| 440 | 260/440 | 440 |
| 500 | -- | 500 |
| 690 | 400/690 | 690 (only from size S3) |
| 1 000 | -- | 1 000 |

-- Not specified

### *Use of 3RT contactors, 3RT and 3TF vacuum contactors, reversing contactor assemblies, and contactor assemblies for star-delta (wye-delta) starting with IE3 and IE4 motors*

Note:

For the use of 3RT contactors, 3RT and 3TF vacuum contactors, reversing contactor assemblies and contactor assemblies for star-delta (wye-delta) starting in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

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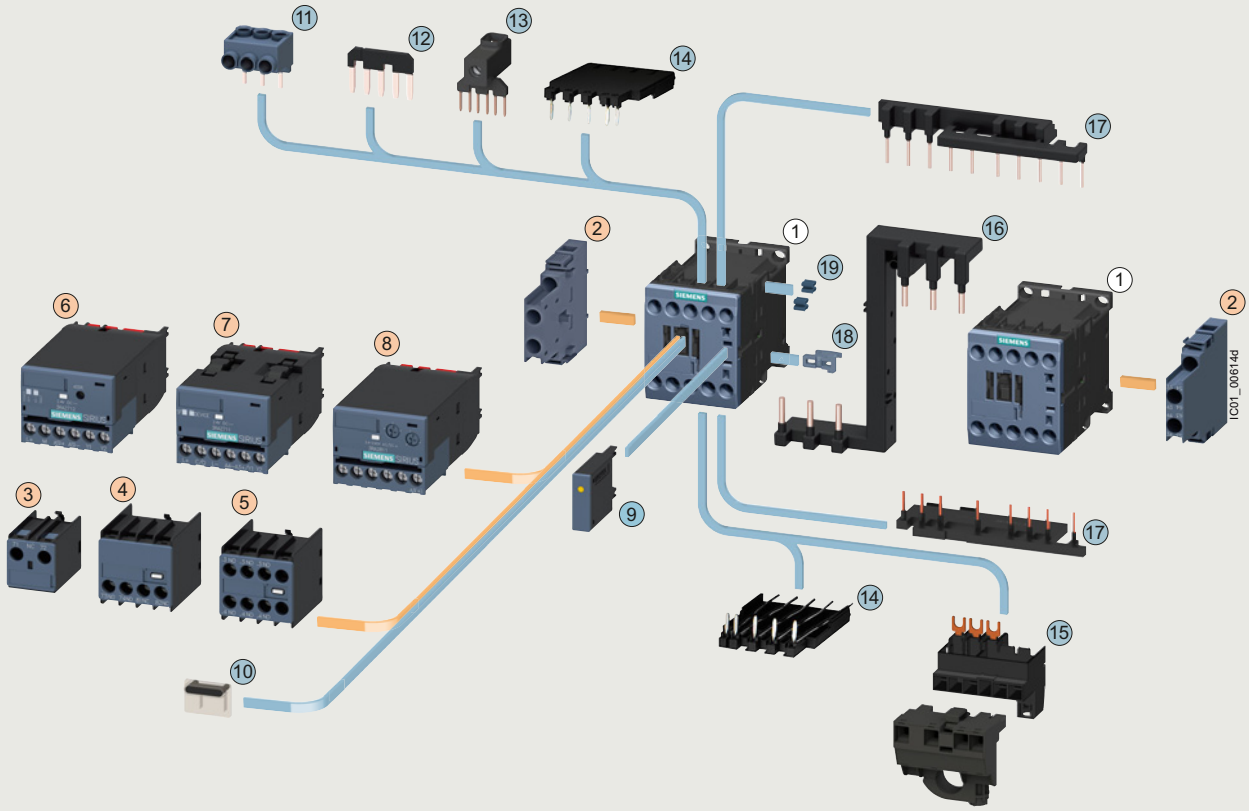
## Overview

### *The SIRIUS family of controls*

The SIRIUS modular system with its components for the switching, starting, protection and monitoring of motors and industrial systems stands for the fast, flexible and space-saving construction of control cabinets.

### *3RT2.1 contactors · Size S00 with mountable accessories*

The figure shows the version with screw terminals




(1) Contactor, size S00

(2) 2-pole auxiliary switch, laterally mountable
(3) 1-pole auxiliary switch, for snapping onto the front, cable entry from the top
(4) 2-pole auxiliary switch, for snapping onto the front, cable entry from the bottom
(5) 4-pole auxiliary switch, for snapping onto the front
(6) 3RA27 function module for AS-Interface
(7) 3RA27 function module for IO-Link
(8) 3RA28 function module
(9) Surge suppressor with/without LED
(10) Cover, sealable
(11) 3-phase infeed terminal

(12) Star jumper, 3-pole, without connecting terminal
(13) Link for paralleling, 3-pole, with connecting terminal
(14) Solder pin adapter
(15) Connection module (adapter and connector) for contactors with screw terminals
(16) Safety main current connector for two contactors

Assembly kit 3RA2913-2AA1
Consisting of:
(17) Wiring modules on the top and bottom for connecting the main, auxiliary and control current paths, electrical interlock [1] included, interruptible (NC contact interlock)
(18) Mechanical interlocks [2]
(19) Two connecting clips for two contactors [2]

For contactors
For contactors and coupling contactors

[1] 3RT201. contactors with one NC contact in the basic unit are required for the electrical interlock. An additional NO contact is required for momentary-contact operation.

[2] The parts (18) and (19) can only be ordered together as 3RA2912-2H mechanical connectors.

Accessories and spare parts, see pages 3/69 to 3/119.

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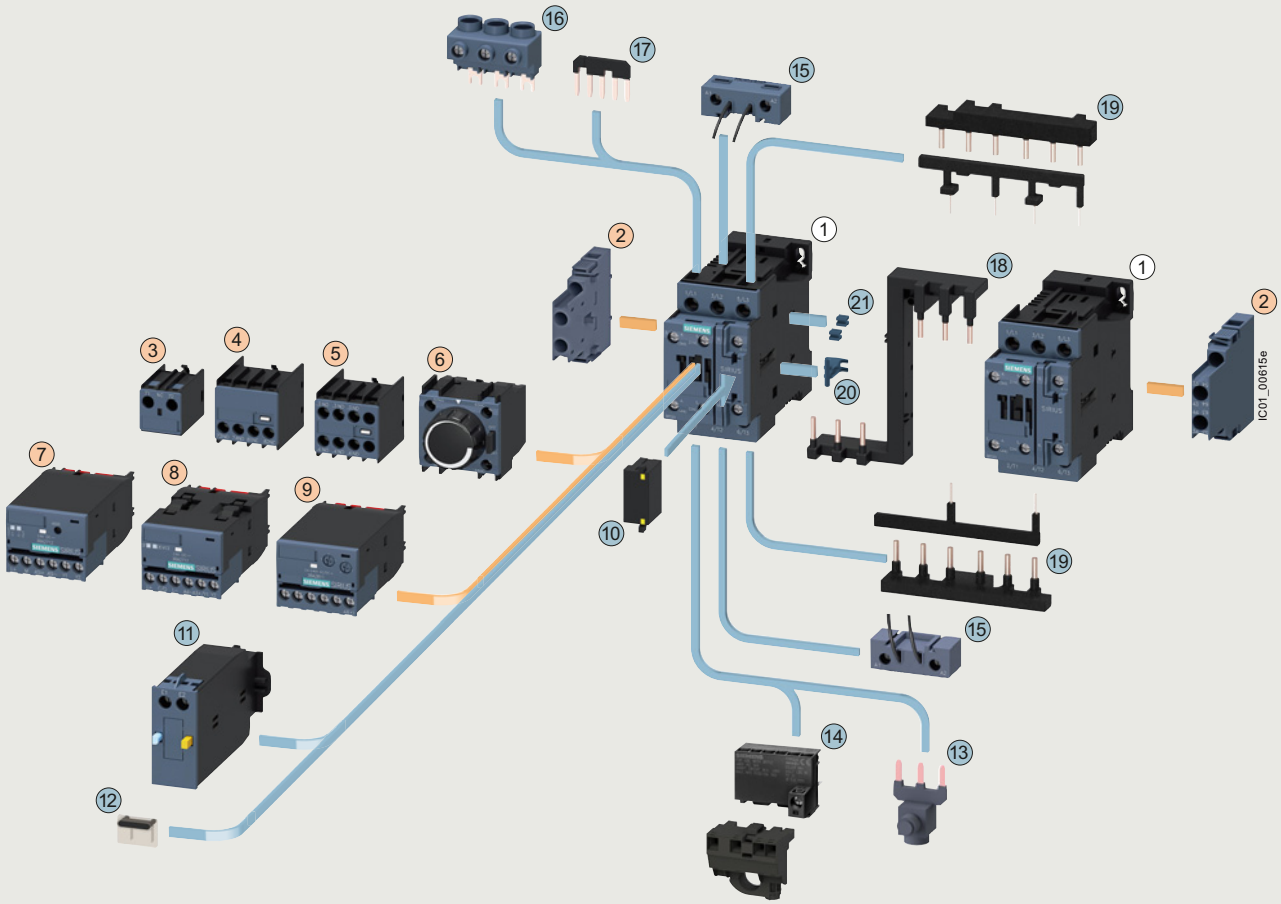
***3RT2.2 contactors · Size S0 with mountable accessories***

The figure shows the version with screw terminals




(1) Contactor, size S0

(2) 2-pole auxiliary switch, laterally mountable
(3) 1-pole auxiliary switch, for snapping onto the front cable entry from the top
(4) 2-pole auxiliary switch, for snapping onto the front cable entry from the bottom
(5) 4-pole auxiliary switch, for snapping onto the front
(6) Pneumatically delayed auxiliary switch
(7) 3RA27 function module for AS-Interface
(8) 3RA27 function module for IO-Link
(9) 3RA28 function module
(10) Surge suppressor with/without LED
(11) Mechanical latching block
(12) Cover, sealable

(13) Link for paralleling, 3-pole, with connecting terminal
(14) Connection module (adapter and plug) for contactors with screw terminals
(15) Coil connection module, on the top or bottom
(16) 3-phase infeed terminal
(17) Link for paralleling (star jumper), 3-pole, without connecting terminal
(18) Safety main current connector for two contactors

Assembly kit 3RA2923-2AA1
Consisting of:
(19) Wiring modules on the top and bottom for connecting the main current paths, electrical interlock included (NC contact interlock)
(20) Mechanical interlocks [1)]
(21) Two connecting clips for two contactors [1)]

For contactors
For contactors and coupling contactors

[1)] The parts (20) and (21) can only be ordered together as 3RA2922-2H mechanical connectors.

Accessories and spare parts, see pages 3/69 to 3/119.

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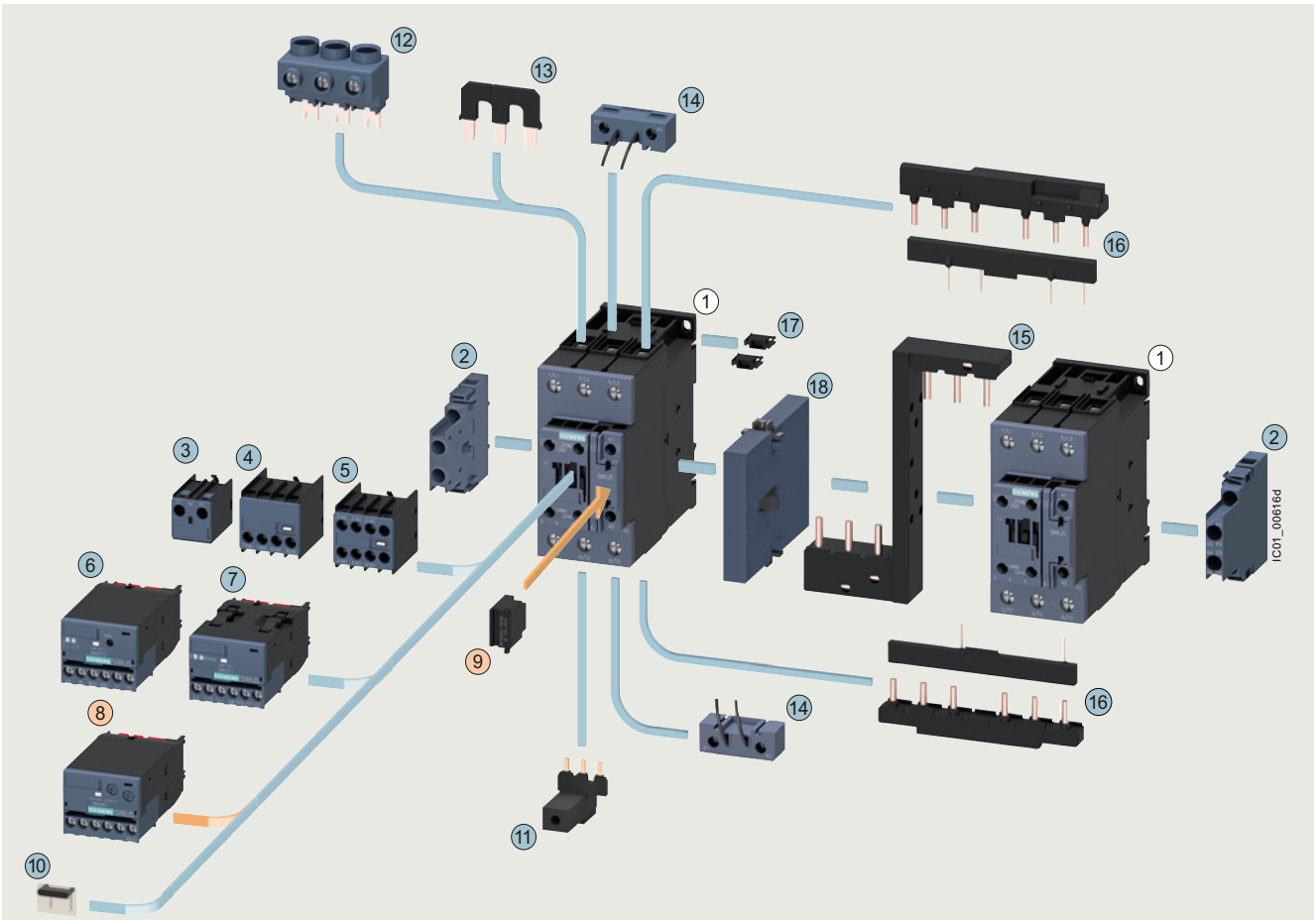
## General data

***3RT2.3 contactors · Size S2 with mountable accessories***

The figure shows the version with screw terminals




(1) Contactor, size S2

(2) 2-pole auxiliary switch, laterally mountable
(3) 1-pole auxiliary switch, for snapping onto the front, cable entry from the top
(4) 2-pole auxiliary switch, for snapping onto the front, cable entry from the bottom
(5) 4-pole auxiliary switch, for snapping onto the front
(6) 3RA27 function module for AS-Interface
(7) 3RA27 function module for IO-Link
(8) 3RA28 function module
(9) Surge suppressor with/without LED
(10) Cover, sealable
(11) Link for paralleling, 3-pole, with connecting terminal
(12) 3-phase infeed terminal
(13) Link for paralleling (star jumper), 3-pole, without connecting terminal
(14) Coil connection module, top or bottom
(15) Safety main current connector for two contactors

Assembly kit 3RA2933-2AA1
Consisting of:
(16) Wiring modules on the top and bottom for connecting the main current paths, electrical interlock included (NC contact interlock)
(17) Two connecting clips for two contactors

To be ordered separately:
(18) Mechanical interlocks

For contactors
For contactors and coupling contactors

Accessories and spare parts, see pages 3/69 to 3/119.

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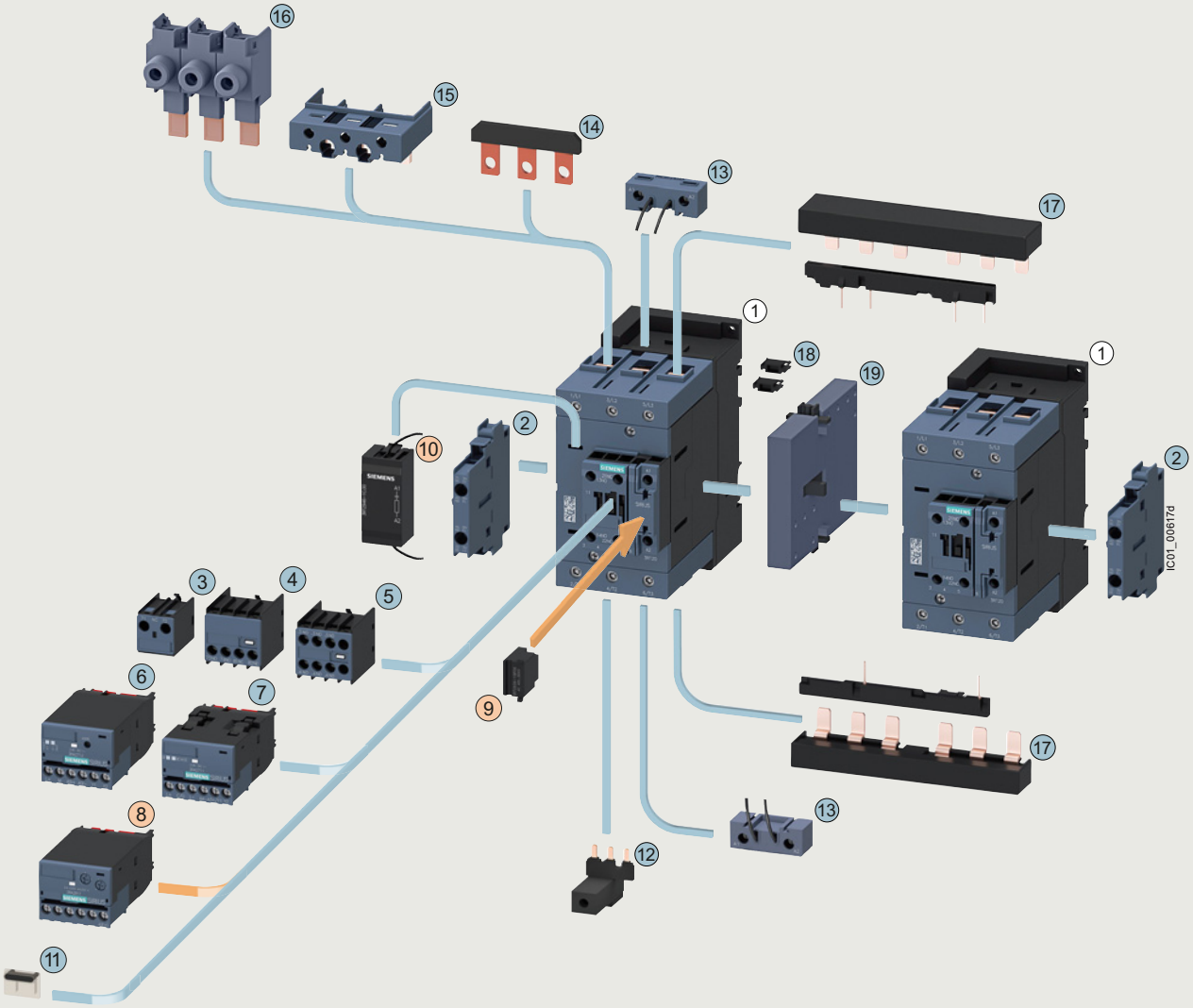
***3RT2.4 contactors · Size S3 with mountable accessories***

The figure shows the version with screw terminals




(1) Contactor, size S3

(2) 2-pole auxiliary switch, laterally mountable
(3) 1-pole auxiliary switch, for snapping onto the front, cable entry from the top
(4) 2-pole auxiliary switch, for snapping onto the front, cable entry from the bottom
(5) 4-pole auxiliary switch, for snapping onto the front
(6) 3RA27 function module for AS-Interface
(7) 3RA27 function module for IO-Link
(8) 3RA28 function module
(9) Surge suppressor with/without LED (Varistor, diode assembly), can be plugged in on the front
(10) Surge suppressor without LED (RC element), can be plugged in on the front in the recesses on the left next to the connection block
(11) Cover, sealable

(12) Links for paralleling, 3-pole, with connecting terminal
(13) Coil connection module, top or bottom
(14) Links for paralleling (star jumper), 3-pole, without connecting terminal
(15) Auxiliary conductor terminal, 3-pole
(16) Single-phase infeed terminals (3 units)

Assembly kit 3RA2943-2AA1
Consisting of:
(17) Wiring modules on the top and bottom for connecting the main, auxiliary and control current paths, electrical interlock[1] included, interruptible (NC contact interlock)
(18) Two connectors for two contactors

To be ordered separately:
(19) Mechanical interlock

[1] 3RT201. contactors with one NC contact in the basic unit are required for the electrical interlock. An additional NO contact is required for momentary-contact operation.

For contactors
For contactors and coupling contactors

Accessories and spare parts, see pages 3/69 to 3/119.

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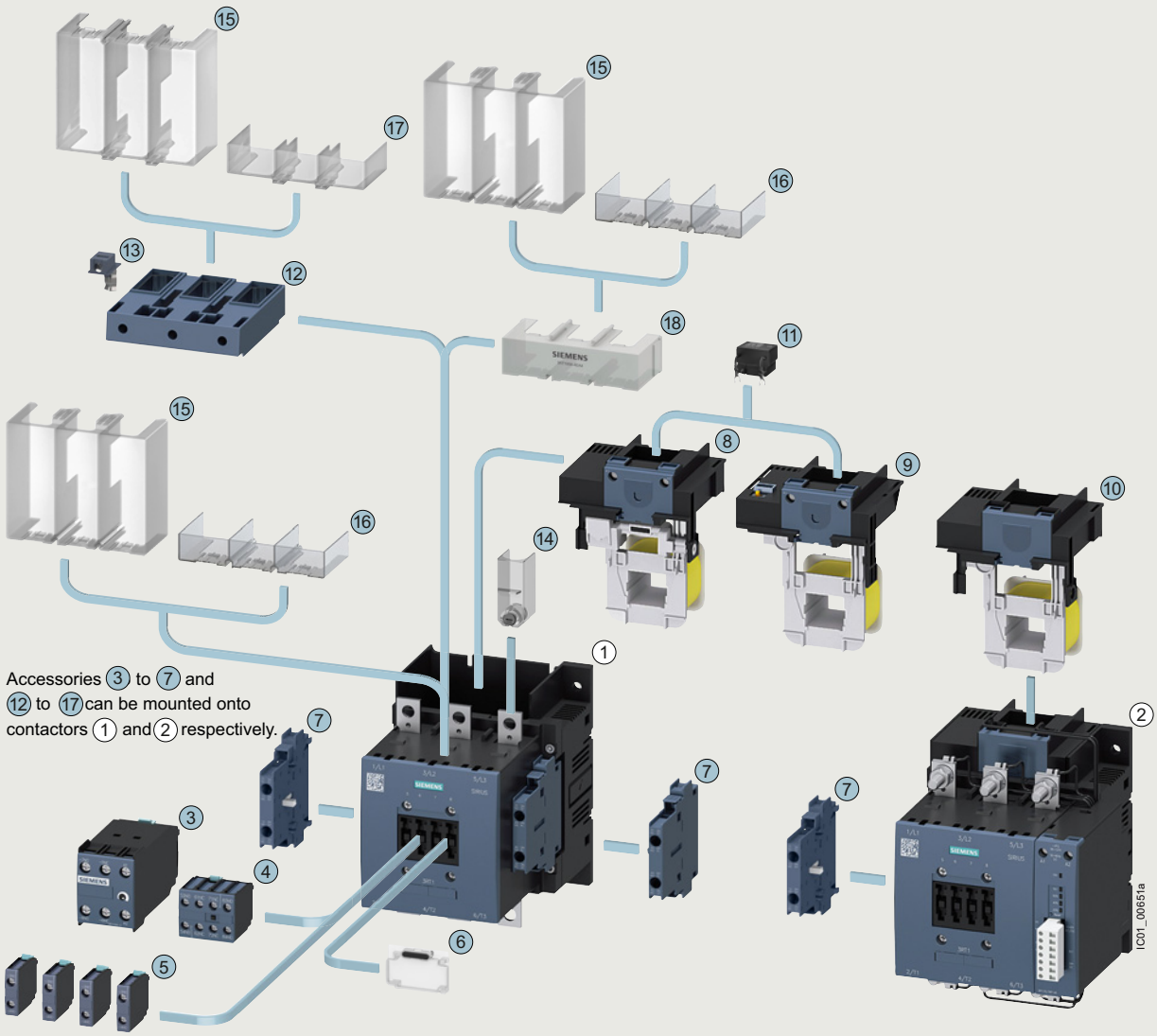
## General data

### 3RT105 and 3RT145 contactors · Size S6 with mountable accessories




1 3RT105 and 3RT145 air-break contactors, size S6 (version without withdrawable coil)

2 3RT105.-.P and 3RT145.-.P air-break contactors with solid-state operating mechanism and remaining lifetime indicator, size S6 (version with withdrawable coil and laterally mountable add-on module)

**Can be mounted onto the front of contactors 1 and 2**

3 3RT1926: Auxiliary switch, electronically delayed (ON-delay or OFF-delay or star-delta (wye-delta) starting)

4 3RH192: 4-pole auxiliary switch

5 3RH192: 1-pole auxiliary switch (max. four can be snapped on)

6 3RT1926-4MA10: Cover, sealable

**Can be mounted onto the side of contactors 1 and 2**

7 3RH192: 2-pole auxiliary switch

**Can be inserted in top of contactors**

8 3RT1955-5A.3.: Withdrawable coil, standard operating mechanism

9 3RT1955-5N.3.: Withdrawable coil, solid-state operating mechanism

10 3RT1955-5P.3.: Withdrawable coil, solid-state operating mechanism and remaining lifetime indicator

**Can be plugged onto the top of contactor operating mechanisms 8 and 9**

11 3RT1956-1C: Surge suppressor (RC element)

**Can be mounted onto the top or bottom on busbars or box terminals of contactors 1 and 2**

12 3RT1956-4G: Box terminal block

13 3TX7500-0A: Auxiliary conductor terminal, 1-pole

14 3TX6526-3B: Terminal cover (can be screwed on), covers one busbar connection

15 3RT1956-4EA1: Terminal cover for busbar connection and on box terminal

16 3RT1956-4EA3: Terminal cover for busbar connection

17 3RT1956-4EA2: Terminal cover on box terminal

18 3RT1956-4EA4: Terminal cover for busbar connection, covers 15, 16 to 18 can be mounted

Accessories and spare parts, see pages 3/69 to 3/119.

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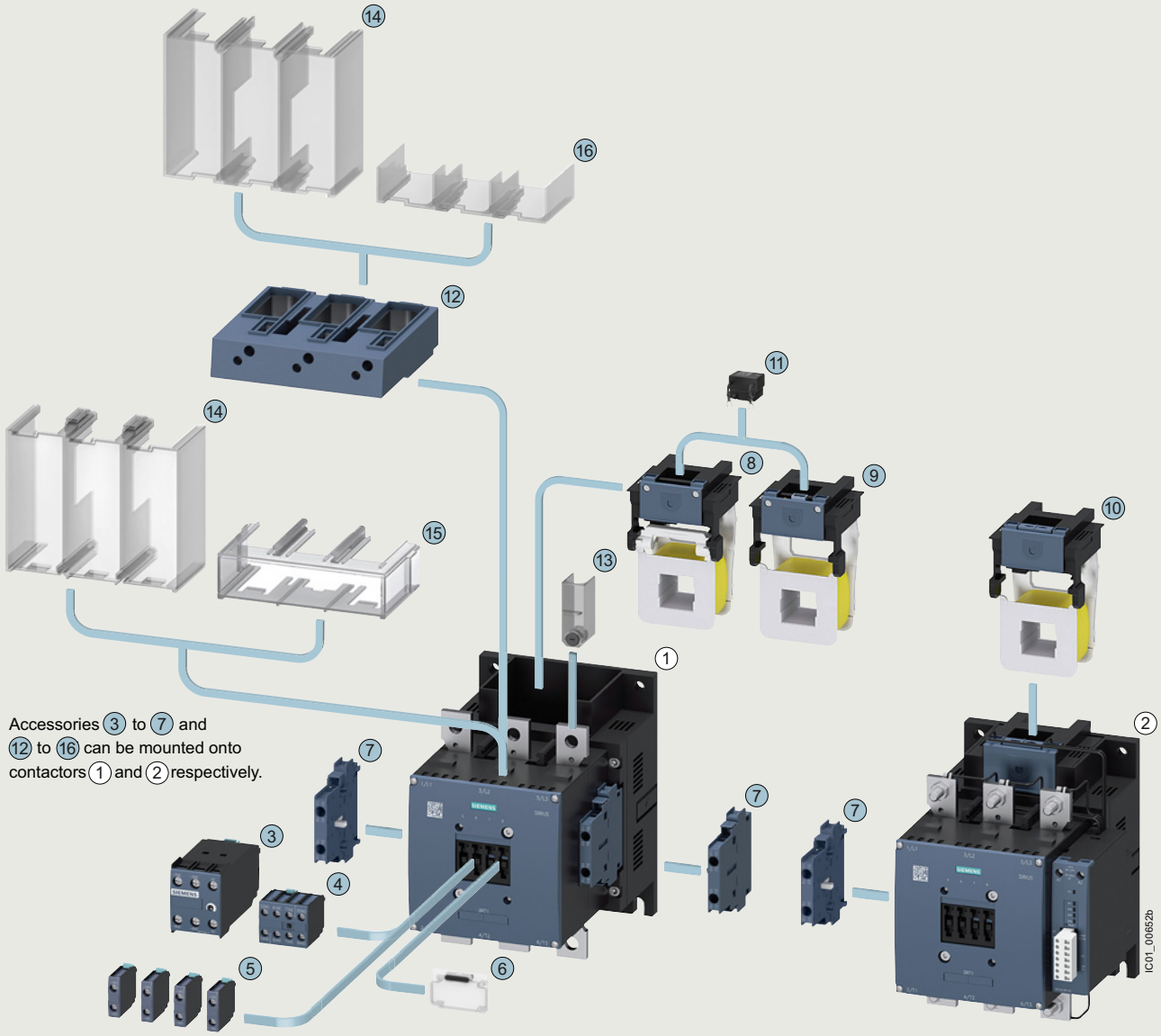
***3RT106 and 3RT146 contactors · Size S10 with mountable accessories***




1 3RT106 and 3RT146 air-break contactors, size S10 (version without withdrawable coil)

2 3RT106.-.P and 3RT146.-.P air-break contactors with solid-state operating mechanism and remaining lifetime indicator, size S10 (version with withdrawable coil and laterally mountable add-on module)

**Can be mounted onto the front of contactors 1 and 2**

3 3RT1926: Auxiliary switch, electronically delayed (ON-delay or OFF-delay or star-delta (wye-delta) starting)

4 3RH192: 4-pole auxiliary switch

5 3RH192: 1-pole auxiliary switch (max. four can be snapped on)

6 3RT1926-4MA10: Cover, sealable

**Can be mounted onto the side of contactors 1 and 2**

7 3RH192: 2-pole auxiliary switch

**Can be inserted in the top of contactors**

8 3RT1965-5A.3.: Withdrawable coil, standard operating mech.

9 3RT1965-5N.3.: Withdrawable coil, solid-state operating mech.

10 3RT1965-5P.3.: Withdrawable coil, solid-state operating mech. and remaining lifetime indicator

**Can be plugged onto the top of contactor operating mechanisms 8 and 9**

11 3RT1956-1C: Surge suppressor (RC element)

**Can be mounted at the top or bottom on busbars or box terminals of contactors 1 and 2**

12 3RT1966-4G: Box terminal block

13 3TX6546-3B: Terminal cover (can be screwed on), covers one busbar connection

14 3RT1966-4EA1: Terminal cover for busbar connection and on box terminal

15 3RT1966-4EA3: Terminal cover for busbar connection

16 3RT1966-4EA2: Terminal cover on box terminal

Accessories and spare parts, see pages 3/69 to 3/119.

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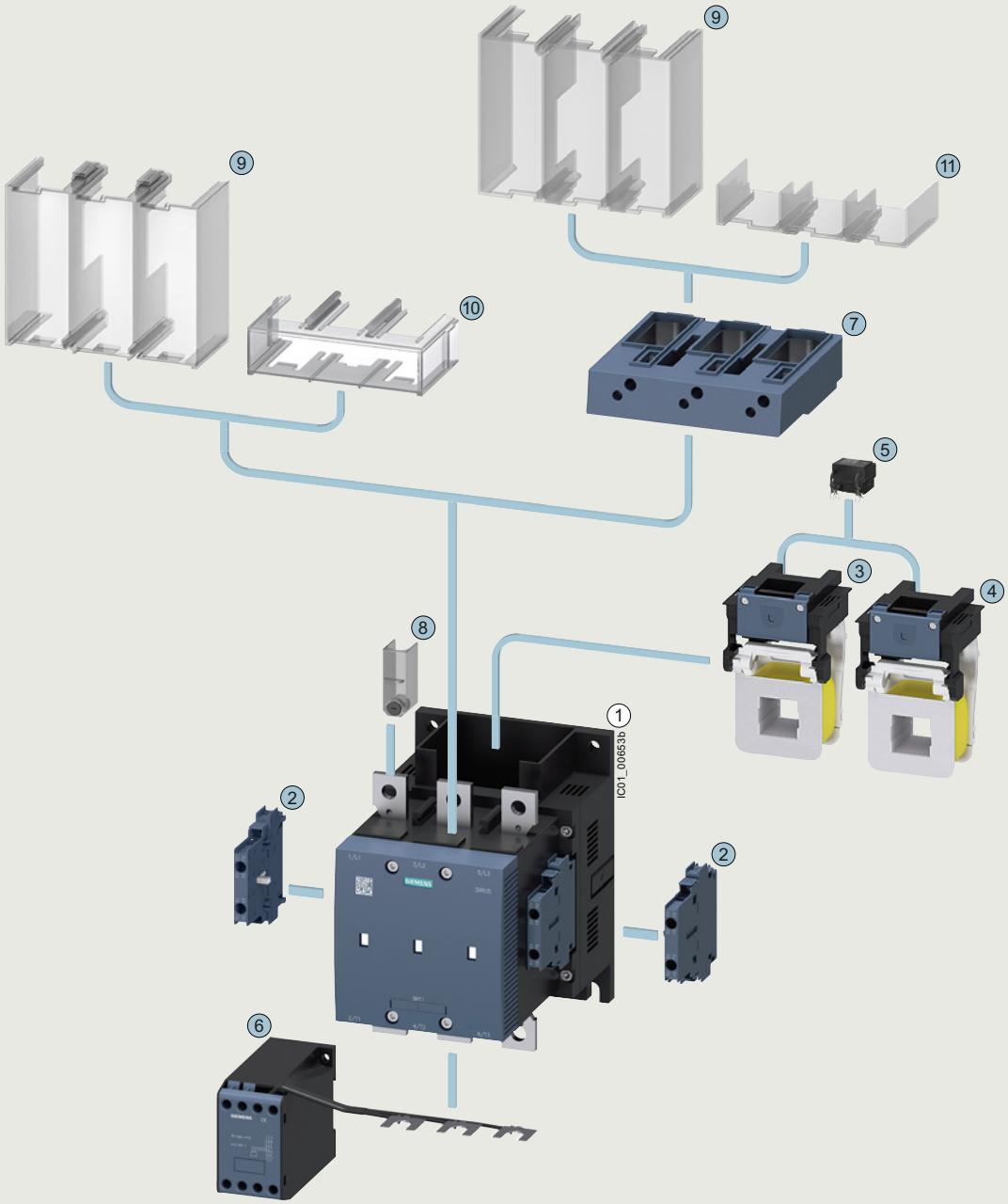
## General data

***3RT126 vacuum contactors · Size S10 with mountable accessories***




(1) 3RT126 vacuum contactor, size S10 (version without withdrawable coil)

**Can be mounted onto side of contactor**

(2) 3RH192: 2-pole auxiliary switch

**Can be inserted in top of contactor**

(3) 3RT1966-5A.3.: Withdrawable coil, standard operating mechanism

(4) 3RT1966-5N.3.: Withdrawable coil, solid-state operating mechanism

**Can be plugged onto top of contactor operating mechanisms**

(5) 3RT1956-1C: Surge suppressor (RC element)

**Can be mounted at bottom on busbars**

(6) 3RT1966-1PV.: Main current path surge suppression module

**Can be mounted onto the top or bottom on busbars or box terminals**

(7) 3RT1966-4G: Box terminal block

(8) 3TX6546-3B: Terminal cover (can be screwed on), covers one busbar connection

(9) 3RT1966-4EA1: Terminal cover for busbar connection and on box terminal

(10) 3RT1966-4EA3: Terminal cover for busbar connection

(11) 3RT1966-4EA2: Terminal cover on box terminal

Accessories and spare parts, see pages 3/69 to 3/119 and 3/133 to 3/137.

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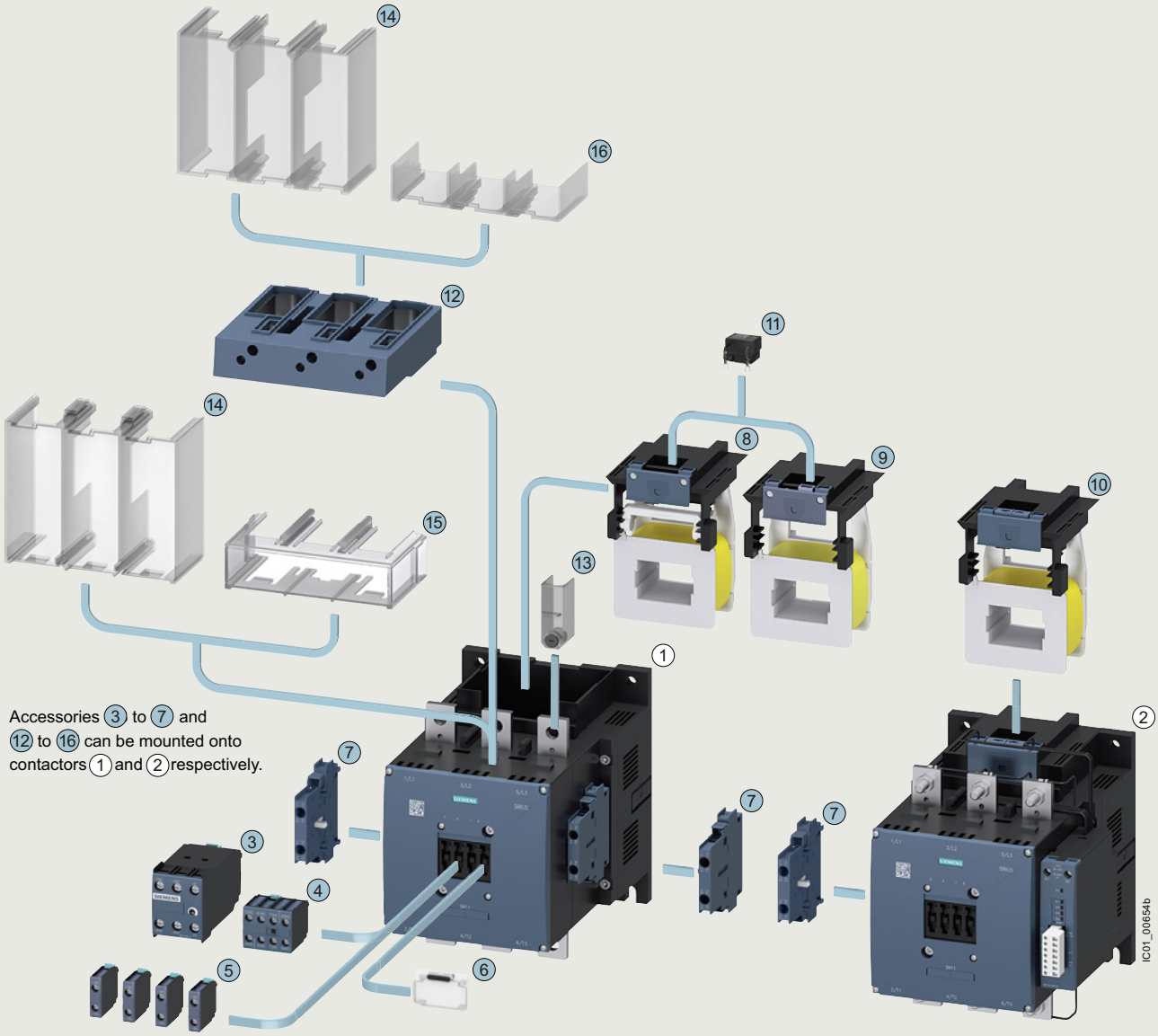
***3RT107 and 3RT147 contactors · Size S12 with mountable accessories***




1 3RT107 and 3RT147 air-break contactors, size S12 (version without withdrawable coil)

2 3RT107.-.P and 3RT147.-.P air-break contactors with solid-state operating mechanism and remaining lifetime indicator, size S12 (version with withdrawable coil and laterally mountable add-on module)

**Can be mounted onto the front of contactors 1 and 2**

3 3RT1926: Auxiliary switch, electronically delayed (ON-delay or OFF-delay or star-delta (wye-delta) starting)

4 3RH192: 4-pole auxiliary switch

5 3RH192: 1-pole auxiliary switch (max. four can be snapped on)

6 3RT1926-4MA10: Cover, sealable

**Can be mounted onto the side of contactors 1 and 2**

7 3RH192: 2-pole auxiliary switch

**Can be inserted in top of contactors**

8 3RT1975-5A.3.: Withdrawable coil, standard operating mech.

9 3RT1975-5N.3.: Withdrawable coil, solid-state operating mech.

10 3RT1975-5P.3.: Withdrawable coil, solid-state operating mech. and remaining lifetime indicator

**Can be plugged onto top of contactor operating mechanisms 8 and 9**

11 3RT1956-1C: Surge suppressor (RC element)

**Can be mounted at the top or bottom on busbars or box terminals of contactors 1 and 2**

12 3RT1966-4G: Box terminal block

13 3TX6546-3B: Terminal cover (can be screwed on), covers one busbar connection

14 3RT1966-4EA1: Terminal cover for busbar connection and on box terminal

15 3RT1966-4EA3: Terminal cover for busbar connection

16 3RT1966-4EA2: Terminal cover on box terminal

Accessories and spare parts, see pages 3/69 to 3/119.

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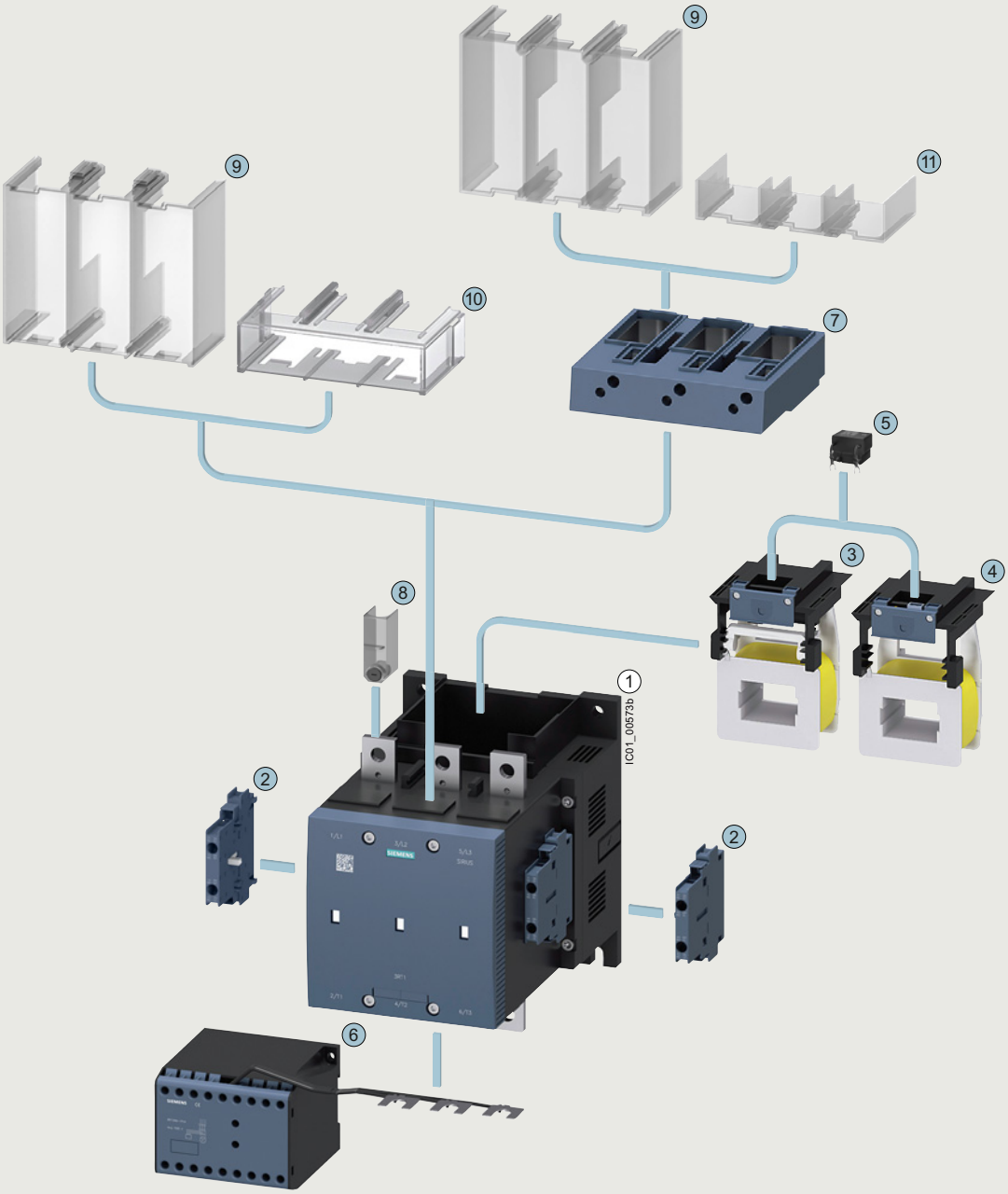
## General data

***3RT127 vacuum contactors · Size S12 with mountable accessories***




(1) 3RT127 vacuum contactor, size S12
(version without withdrawable coil)

**Can be mounted onto the side of contactor**

(2) 3RH192: 2-pole auxiliary switch

**Can be inserted in top of contactors**

(3) 3RT1975-5A.3.: Withdrawable coil, standard operating mechanism
(4) 3RT1975-5N.3.: Withdrawable coil, solid-state operating mechanism

**Can be plugged onto the top of contactor operating mechanisms**

(5) 3RT1956-1C: Surge suppressor (RC element)

**Can be mounted at bottom on busbars**

(6) 3RT1966-1PV.: Main current path surge suppression module

**Can be mounted at the top or bottom on busbars or box terminals**

(7) 3RT1966-4G: Box terminal block
(8) 3TX6546-3B: Terminal cover (can be screwed on), covers one busbar connection
(9) 3RT1966-4EA1: Terminal cover for busbar connection and on box terminal
(10) 3RT1966-4EA3: Terminal cover for busbar connection
(11) 3RT1966-4EA2: Terminal cover on box terminal

Accessories and spare parts, see pages 3/69 to 3/119 and 3/133 to 3/137.

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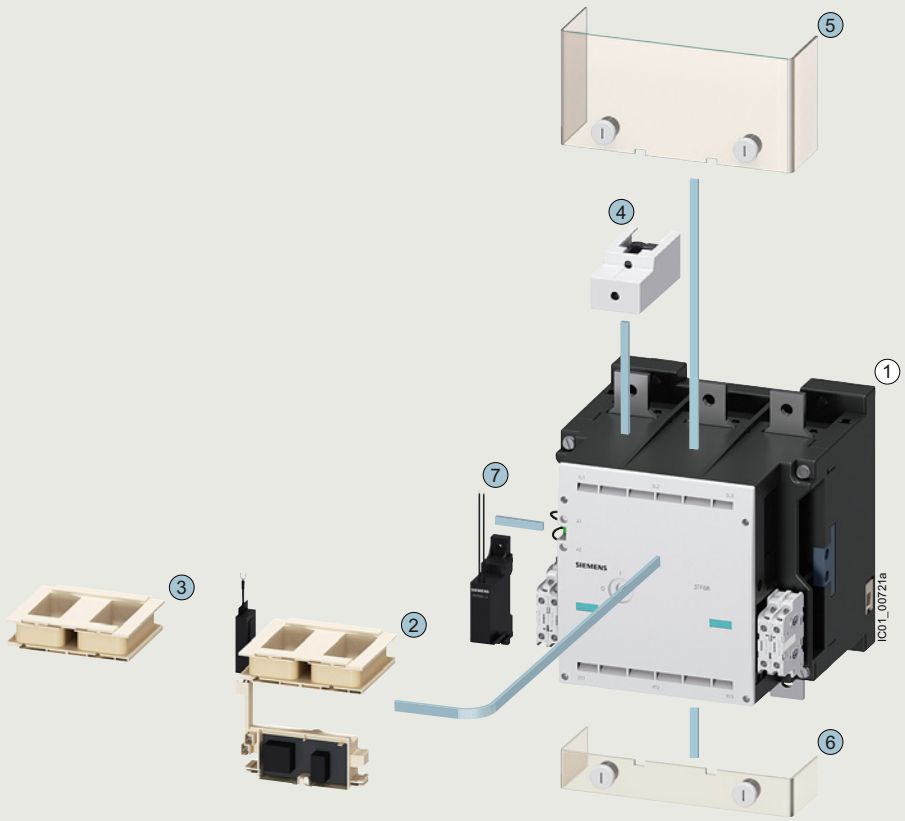
***3TF68 and 3TF69 vacuum contactors · Size S14 with mountable accessories***




(1) 3TF68 and 3TF69 vacuum contactors, size 14

**Can be inserted or mounted on the front of the contactor (with the cover removed)**

(2) Solenoid coils for AC operation, with switch-on electronics for contactor
3TF6844-.C: 3TY7683-0C.7
3TF6944-.C: 3TY7693-0C.7

(3) Solenoid coils for AC control supply voltage subject to strong interference
3TF6833-.Q: 3TY7683-0Q.7
3TF6933-.Q: 3TY7693-0Q.7

Solenoid coils for DC operation
3TF6833-.D: 3TY7683-0D.4

**Can be mounted on the front from above or below on busbars**

(4) Box terminal (1 set = 3 units)
3TF68: 3TX7570-1E
3TF69: 3TX7690-1F

(5) Terminal cover for busbar connection (1 set = 2 units), attached to the right and left busbar connection in each case
3TF68: 3TX7686-0A
3TF69: 3TX7696-0A

**Can be mounted on the front of 3TF68 contactors from below on busbars**

(6) Terminal cover for busbar connection
(on outgoing side in combination with overload relay)
3TF68: 3TX7686-0B

**Can be snapped onto the left-hand side of the auxiliary switches**

(7) Surge suppressor (only with DC operation)
3TF6.33-.D: 3TX7572-3.

Accessories and spare parts, see pages 3/133 to 3/137.

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## SIRIUS 3RT contactors, 3-pole up to 250 kW

### Overview

| Version | Size | Ratings of three-phase motors at 50 Hz and 400 V<br>kW | Connection methods<br>Screw terminals | <br>Spring-loaded terminals | Type | Page |
|---|---|---|---|---|---|---|
| **Power contactors for switching motors** | | | | | | |
| ***AC operation*** | | | | | | |
| **Basic unit** | S00 | 3 ... 7.5 | ✓ | ✓ | 3RT201.-.A0. | 3/47 |
| • With permanently mounted auxiliary switch | | | ✓ | ✓ | 3RT201.-.AP04-3MA0 | 3/47 |
| • With permanently mounted auxiliary switch and varistor plugged into the front | | | ✓ | ✓ | 3RT201.-.CP04-3MA0 | 3/47 |
| **Basic unit** | S0 | 4 ... 18.5 | ✓ | ✓ | 3RT202.-.A.00 | 3/48 |
| • With removable auxiliary switch | | | ✓ | ✓ | 3RT202.-.A.04 | 3/49 |
| • With permanently mounted auxiliary switch and varistor plugged in | | | ✓ | ✓ | 3RT202.-.CL24-3MA0 | 3/49 |
| **Basic unit** | S2 | 18.5 ... 37 | ✓ | ✓ | 3RT203.-.A.00 | 3/50 |
| • With removable auxiliary switch | | | ✓ | -- | 3RT203.-1A.04 | 3/50 |
| • With permanently mounted auxiliary switch and integrated coil circuit | | | ✓ | ✓ | 3RT203.-.CL24-3MA0 | 3/50 |
| **Basic unit** | S3 | 37 ... 55 | ✓ | ✓ | 3RT20.-.A.00 | 3/51 |
| • With removable auxiliary switch | | | ✓ | -- | 3RT204.-1A.04 | 3/51 |
| • With permanently mounted auxiliary switch and integrated coil circuit | | | ✓ | -- | 3RT204.-1CL24-3MA0 | 3/51 |
| ***DC operation*** | | | | | | |
| **Basic unit** | S00 | 3 ... 7.5 | ✓ | ✓ | 3RT201.-.B.4. | 3/52 |
| • With integrated coil circuit | | | ✓ | ✓ | 3RT201.-..B4. | 3/52 |
| • With permanently mounted auxiliary switch | | | ✓ | ✓ | 3RT201.-.BB44-3MA0 | 3/53 |
| • With permanently mounted auxiliary switch and integrated coil circuit | | | ✓ | ✓ | 3RT201.-.FB44-3MA0 | 3/53 |
| • With voltage tap-off | | | ✓ | ✓ | 3RT201.-.BB4.-0CC0 | 3/53 |
| **Basic unit** | S0 | 4 ... 18.5 | ✓ | ✓ | 3RT202.-.B.40 | 3/56 |
| • With coil circuit plugged into front | | | ✓ | ✓ | 3RT202.-..B40 | 3/56 |
| • With removable auxiliary switch | | | ✓ | ✓ | 3RT202.-.BB44 | 3/56 |
| • With permanently mounted auxiliary switch and integrated coil circuit | | | ✓ | ✓ | 3RT202.-..B44-3MA0 | 3/57 |
| • With voltage tap-off | | | ✓ | ✓ | 3RT202.-.BB40-0CC0 | 3/57 |
| ***DC operation for direct control by PLC*** (coupling contactors) | | | | | | |
| **Basic unit** | S00 | 3 ... 5.5 | ✓ | ✓ | 3RT201.-..B4. | 3/54 |
| **Basic unit with integrated coil circuit** | S00 | 3 ... 5.5 | ✓ | ✓ | 3RT201.-..B4. | 3/54, 3/55 |
| | S0 | 4 ... 15 | ✓ | ✓ | 3RT202.-.KB40 | 3/58 |
| | S2 | 18.5 ... 37 | ✓ | ✓ | 3RT203.-.KB40 | 3/59 |
| | S3 | 37 and 45 | ✓ | ✓ | 3RT204.-.KB40 | 3/59 |
| ***AC/DC operation (50/60 Hz AC or DC)*** | | | | | | |
| **Basic unit with integrated coil circuit** | S0 | 5.5 ... 18.5 | ✓ | ✓ | 3RT202.-.N.30 | 3/60 |
| **Basic unit with integrated coil circuit** | S2 | 18.5 ... 37 | ✓ | ✓ | 3RT203.-.N.30 | 3/61 |
| • With removable auxiliary switch | | | ✓ | -- | 3RT203.-1N.34 | 3/61 |
| • With permanently mounted auxiliary switch | | | ✓ | ✓ | 3RT203.-.NB34-3MA0 | 3/61 |
| • With voltage tap-off | | | ✓ | ✓ | 3RT203.-.NB30-0CC0 | 3/61 |
| • With fail-safe 24 V DC control signal input for safety-related applications up to SIL 3 | | | ✓ | ✓ | 3RT203.-.S.30 | 3/62 |
| **Basic unit with integrated coil circuit** | S3 | 37 ... 55 | ✓ | ✓ | 3RT204.-.N.30 | 3/63 |
| • With removable auxiliary switch | | | ✓ | -- | 3RT204.-1N.34 | 3/63 |
| • With permanently mounted auxiliary switch | | | ✓ | ✓ | 3RT204.-.NB34-3MA0 | 3/63 |
| • With voltage tap-off | | | ✓ | ✓ | 3RT204.-.NB30-0CC0 | 3/63 |
| • With fail-safe 24 V DC control signal input for safety-related applications up to SIL 3 | | | ✓ | ✓ | 3RT204.-.S.30 | 3/62 |
| **Basic unit with integrated coil circuit** | | | | | | |
| • Standard operating mechanism for AC and DC operation | S6 ... S12 | 55 ... 250 | ✓[1] | ✓ | 3RT10..-.A.36 | 3/64 |
| • Solid-state operating mechanism with the option of control via a separate 24 V DC control signal input | | | | | | |
| - Fail-safe control signal input for safety-related applications up to SIL 3 | S6 ... S12 | 55 ... 250 | ✓[1] | -- | 3RT10..-.S.36 | 3/65 |
| - Standard control signal input | | | ✓[1] | ✓ | 3RT10..-.N.36 | 3/66 |
| - Standard control signal input, with remaining lifetime indicator (RLT) | | | ✓[1] | -- | 3RT10..-.P.35 | 3/66 |

-- Version not possible

✓ Version possible

[1] Connection method:
- Main circuit: Busbar connection (optionally with box terminals),
- Auxiliary/control circuit: Screw terminals or spring-loaded terminals.

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Contactors with screw terminals: 3RT20 (sizes S00 to S3) and 3RT10 (sizes S6 to S12)

Our power range of contactors for switching IE2 motors and highly efficient IE3 and IE4 motors:

- Contactors,
  see pages 3/47 to 3/66:
  - Size S00: 3RT201 up to 7.5 kW
  - Size S0: 3RT202 up to 18.5 kW
  - Size S2: 3RT203 up to 37 kW
  - Size S3: 3RT204 up to 55 kW
  - Sizes S6 to S12: 3RT10 up to 250 kW
- Vacuum contactors,
  see page 3/120 onwards:
  - Sizes S10 and S12: 3RT12 up to 250 kW
  - Size 14: 3TF6 up to 450 kW

***Standards***

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1 (auxiliary switches)

***Contactors with increased tamper protection***

Increased tamper protection is ensured either by using our contactor versions with factory-installed, permanently mounted auxiliary switches protected against mechanical external actuation (e.g. 3RT20...-.....-3MA0 or 3RT10...-.....-3PA0 contactors), or by using the 3RT2916-4MA10 or 3RT1926-4MA10 sealable cover as an accessory (see page 3/112).

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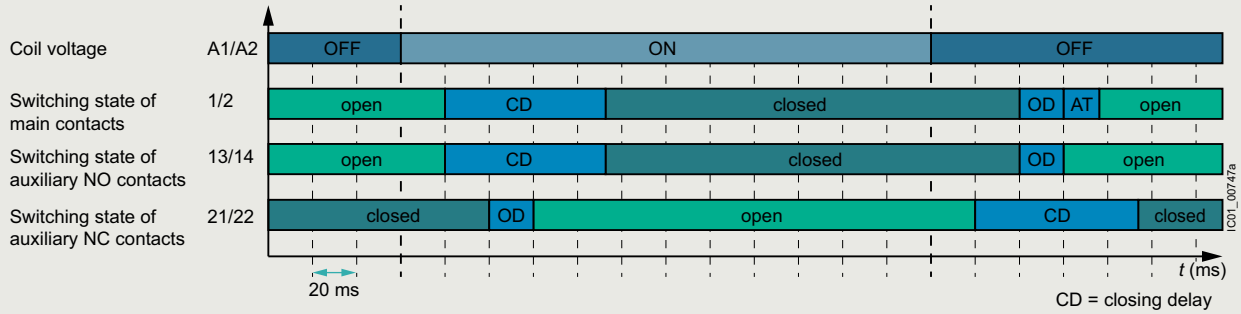
***Operating times***




| Operation | Closing delay | Opening delay | Total break time = Opening delay + Arcing time 10 … 15 ms |
|---|---|---|---|
| AC | 20 ... 95 ms | 40 ... 60 ms | 50 ... 75 ms |
| DC | 20 ... 95 ms | 40 ... 60 ms | 50 ... 75 ms |

Operating times using the example of contactor 3RT1054-1AB36

***Protection of the device connections from short circuit, overload and overvoltage***

Appropriate steps must always be taken to protect device connections from overload and short circuit. There are different constraints depending on the type of connection:

Protection of main terminals from short circuit and overload

For information about protection of a single contactor, see the technical product data sheet.

For more information on complete units such as contactors with overload relays or contactors with motor starter protectors as the motor feeder, see Configuration Manual for load feeders.

Protection of auxiliary connections from short circuit and overload

For information about protection of auxiliary contacts, see the technical product data sheet.

Protection of control supply voltage or supply voltage connections from short circuit and overload

First of all, the relevant standards and regulations for configuring control panels and the parts and components installed in them must be taken into account, for example when dimensioning the cables.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state contactor operating mechanisms, closing, closed).

If there are further switching elements in the circuits, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control panel tip – Fast, reliable selection and dimensioning of an appropriate power supply unit.

Protection of contactors with digital input from short circuit and overload

For the PLC input types according to IEC 60947-4-1 these inputs have a typical rated current of 20 mA. These inputs can be protected accordingly.

- Contactors with PLC and F-PLC inputs:
  - For 3RT10..-.P marked with IN+/IN-
  - For 3RT10..-.S, -.N and 3RT20..-.S marked with +/-
- Supply voltage connections A1 - A2:
  - For 3RT10..-.N, -.P and 3RT20..-.S, protection should be provided on the basis of the load characteristics. For information about power consumption, see the technical product data sheet.
  - For 3RT10..-.S, protection is already integrated.

Protection of other connections from short circuit and overload

The contactor version 3RT10..-.P with remaining lifetime indicator (RLT) has additional connections H1 - H2 and R1 - R2.

If A1 - A2 is already protected, further protection of H1 - H2 is not required.

For information about protection of R1 - R2, see the technical product data sheet.

Overvoltage protection at the control supply voltage connection

3RT20 contactors supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil and can be ordered separately as accessories, see page 3/97 onwards.

The 3RT10 contactors are already equipped with coil damping (varistor).

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more detailed information about how damping affects the time response, see Equipment Manual.

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***Connection methods***

Main circuit

- 3RT201 and 3RT202 contactors:
  Screw terminals or spring-loaded terminals;
  spring-loaded terminals with convenient plug-in design for device connectors
- 3RT203 and 3RT204 contactors:
  Screw terminals with box terminal;
  direct connection to the connecting bar is possible with cable lugs for 3RT204 when the box terminal is removed.
- 3RT10 contactors:
  Screw terminals with connecting bars that the cables can be connected to using either cable lugs or flexible or rigid busbars. Alternatively, box terminals are available as accessories.

Auxiliary and control circuits

The 3RT contactors are available with screw terminals or spring-loaded terminals.

***Electromagnetic compatibility***

The contactors fulfill the requirements for environment category A.

Note:

When the contactors are used in an **environment with frequency converters**, the configuration notes must be observed, see Equipment Manual.

***Contact reliability of the auxiliary contacts***

If voltages ≤ 110 V and currents ≤ 100 mA are to be switched, the auxiliary contacts of the 3RT contactors or 3RH contactor relays should be used as they guarantee a high level of contact reliability.

These auxiliary contacts are particularly suitable for solid-state circuits with currents ≥ 1 mA at a voltage ≥ 17 V.

***Motor protection***

3RT20 contactors

For protection against overload, 3RU2 thermal overload relays (see page 7/89 onwards) or 3RB3 electronic overload relays (see page 7/102 onwards) can be mounted on the 3RT20 contactors.

3RT10 contactors

For protection against overload, 3RB2 electronic overload relays (see page 7/114 onwards) can be mounted on the 3RT10 contactors.

***Plant and application monitoring***

For monitoring and measuring in the application, 3RR2 monitoring relays can be mounted on the 3RT20 contactors (see page 10/47).

***Contactors with voltage tap***

The 3RT20 contactors with voltage tap-off are special versions for mounting the SIRIUS 3RA27 function modules for connection to the control system via IO-Link or AS-Interface (see page 3/73 onwards).

Without a function module, these contactors can be used like the standard versions.

For more information on IO-Link and AS-Interface, see "Industrial communication", page 2/1 onwards.

***Operating mechanism types***

3RT20 contactors

The standard versions are available with AC or DC operating mechanisms or as versions with a wide-range solid-state operating mechanism and a universal actuating voltage (AC or DC operation possible).

Versions with solid-state operating mechanisms for AC or DC operation with a fail-safe PLC input are also available for the 3RT203 and 3RT204 contactors.

Control takes place via the control supply voltage connection A1 - A2 with varying operating ranges (see the technical product data sheet for further details).

DC coupling contactors with reduced power consumption are also ideally suited for connection to the controller.

3RT10 contactors

The operating mechanisms are powered via a supply voltage with an operating range from 0.8 to 1.1 x $U_s$, optionally also controlled depending on the chosen mode of operation. Various rated voltage ranges are available for AC/DC control.

The following control and/or operating mechanism versions can be selected for contactors 3RT105 to 3RT107:

- 3RT10..-.A contactors:
  Standard operating mechanism for AC and DC operation (reduced power consumption when closing and in the closed state)
- Solid-state operating mechanisms:
  Overvoltage damping of the operating mechanism coil is already integrated in the electronics for contactors with solid-state operating mechanisms.
  The following versions are available:
  - 3RT10..-.N contactors:
    With two operating modes: Direct control or via PLC input (24 V DC)
  - 3RT10..-.P contactors:
    Control via PLC input (24 V DC) only, but with additional remaining lifetime indicator (RLT)
  - 3RT10..-.S contactors:
    Control via fail-safe PLC input (24 V DC) only, for simplification of safety applications (without mode of operation selection)

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***Replacing solenoid coils, operating mechanisms or spare contacts***

3RT20 contactors

Coil replacement is possible for contactors 3RT202 to 3RT204.

NOTICE:
Removal or changing of the operating mechanism or spare contacts is not permitted for 3RT20..-.S contactors with fail-safe control.

3RT10 contactors

The operating mechanisms for 3RT10..-.A/-.N/-.P contactors are removable and can be replaced simply by unlocking and pulling them out.

NOTICE:
Removal or changing of the operating mechanism is not permitted for 3RT10..-.S contactors with fail-safe control.

***Fitting auxiliary contacts and mounting additional auxiliary switches***

Features in the delivery state

- 3RT20 contactors:
  - 3RT201 contactors:
    An auxiliary contact is integrated in the basic unit.
  - Contactors 3RT202 to 3RT204:
    The basic units contain two integrated auxiliary contacts (1 NO + 1 NC).
- 3RT10 contactors:
  These contactors are supplied with two laterally mounted auxiliary switches. The fitting of auxiliary switches is possible on the front and on the side.

Expansion possibilities

All basic units (with the exception of coupling contactors in sizes S00 and S0) can be expanded using auxiliary switches.
The permitted configuration must be taken into account.

For detailed information about the fitting of auxiliary switches for 3RT20 contactors, see pages 3/81 to 3/86.

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***Connection of contactors to fail-safe control modules***

While contactors with smaller power ratings can be connected directly to the outputs of fail-safe controllers, implementing safety-related applications with standard contactors with higher power is much more complicated and elaborate because of the necessary coupling links.

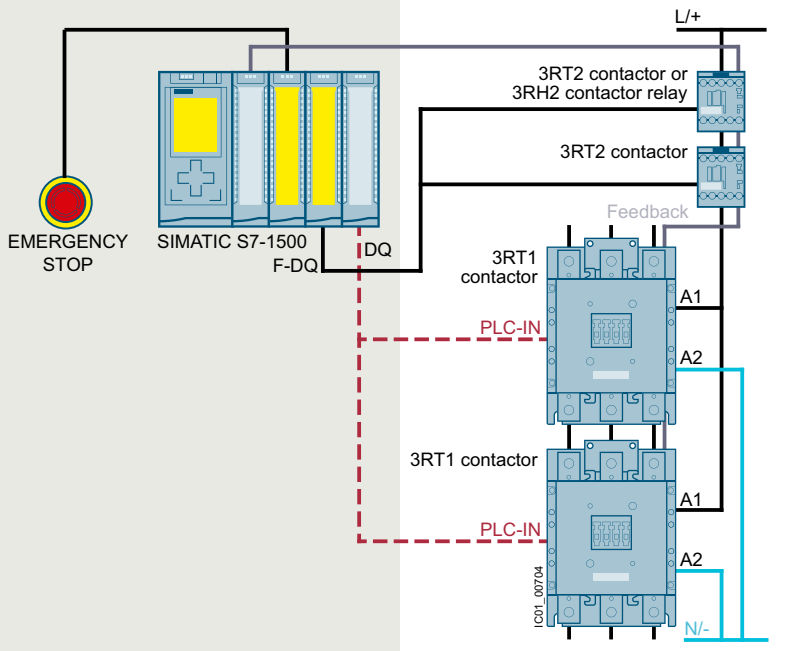
Due to their fail-safe control input, special contactors provide a much simpler way of doing this:

- 3RT20..-.S contactors in sizes S2 and S3
- 3RT10..-.S contactors in sizes S6 to S12

For more information, see

- Safety technology, page 11/1 onwards
- Guide of use for contactors in safety applications

Example for SIL 2 and SIL 3/PL e application – previously:

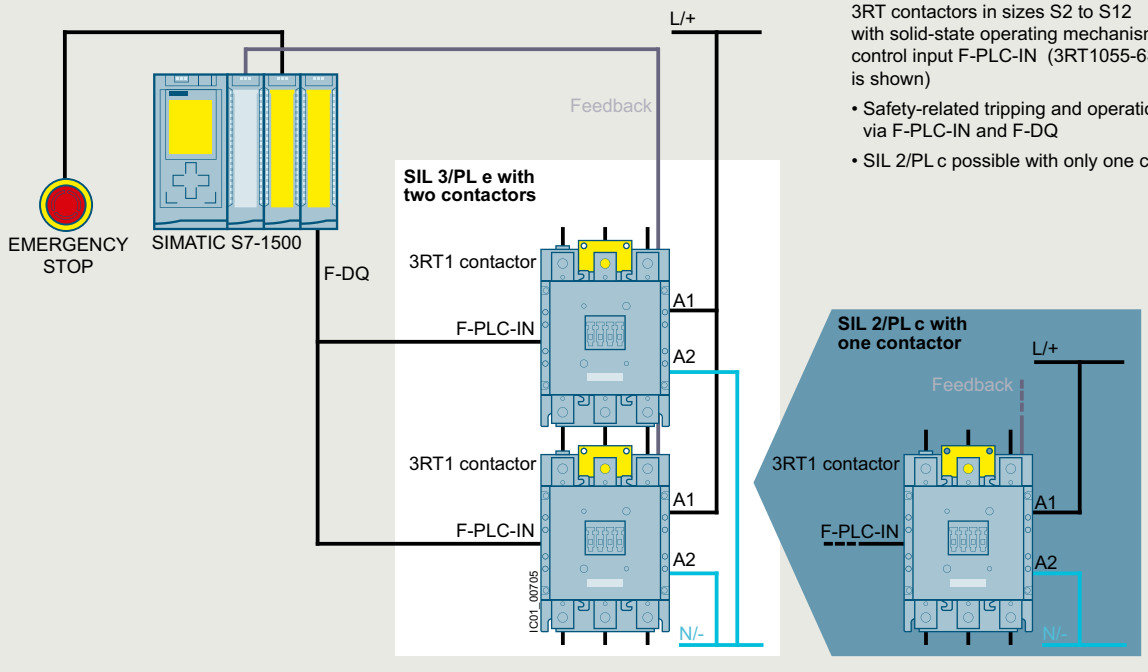



3RT contactors in sizes S2 to S12
with standard or solid-state operating mechanism
with PLC-IN (3RT105 contactor is shown)

- Safety-related tripping only possible via coupling links and F-DQ
- Standard operating mechanism: operational switching via coupling links and F-DQ
- Solid-state operating mechanism: operational switching with PLC-IN and DQ

Application with safety-related disconnection with standard contactors using the example of a 3RT105 contactor

Example for SIL 3/PL e (left-hand side) or SIL 2/PL c (right-hand side) application – new:




3RT contactors in sizes S2 to S12
with solid-state operating mechanism with fail-safe control input F-PLC-IN (3RT1055-6SP36 contactor is shown)

- Safety-related tripping and operational switching via F-PLC-IN and F-DQ
- SIL 2/PL c possible with only one contactor

Application with safety-related disconnection with contactors with fail-safe control using the example of a 3RT105 contactor

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## SIRIUS 3RT contactors, 3-pole up to 250 kW

***Contactors for special applications***

- SIRIUS 3RT.4 contactors for low or non-inductive loads (AC-1), 3-pole, see page 4/7 onwards
- SIRIUS 3RT20 and 3RT10 contactors with an extended application range, 3-pole (for railway applications), see page 4/54 onwards



***Article number scheme***

| Product versions | | Article number |
|---|---|---|
| **SIRIUS power contactors** | | **3RT2** □ □ □ **–** □ □ □ □ □ **–** □ □ □ □ |
| Device type | e.g. 0 = 3-pole motor contactor | □ |
| Size of the contactor | e.g. 4 = S3 | □ |
| Rating dependent on size | e.g. 5 = 37 kW for S3 | □ |
| Type of electrical connection | e.g. 1 = screw terminals (main and auxiliary circuits) | □ |
| Operating range/solenoid coil circuit | e.g. A = AC standard/without coil circuit | □ |
| Rated control supply voltage | e.g. P0 = 230 V AC, 50 Hz | □ □ |
| Auxiliary switches | e.g. 0 = for S3: 1 NO + 1 NC integrated | □ |
| Special version | | □ □ □ □ |
| Example | | **3RT2 0 4 5 – 1 A P 0 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16134/td | System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 |
| FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16134/faq | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60306557 |
| | Application Manual - Switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820 |
| | Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188 |
| | Configuration Manual for UL, see https://support.industry.siemens.com/cs/ww/en/view/53433538 |
| | Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687 |

| Type | | | Contactors | | |
|---|---|---|---|---|---|
| | | | 3RT2 | | 3RT1 |
| Size | | | S00 to S2 | S3 | S6 to S12 |
| **Rated data of the auxiliary contacts** | | | | | |
| **According to IEC 60947-5-1**<br>Data apply to integrated auxiliary contacts and conventional contacts in the auxiliary switches | | | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | | V | 690 | 1 000<br>(3RT20..-0CC0: 690) | -- |
| • For laterally mountable auxiliary switches | | V | 690 | 690 | 500 |
| • For front auxiliary switches | | V | 690 | 690 | 690 |
| **Conventional thermal current $I_{th}$ = rated operational current $I_e$/AC-12** | | A | 10 | | |
| **AC load** | | | | | |
| **Rated operational current $I_e$/AC-15/AC-14** | | | | | |
| • At rated operational voltage $U_e$ | Up to 230 V | A | 10[1] | 6 | 6 |
| | 400 V | A | 3 | | 3 |
| | 500 V | A | 2 | | 2 |
| | 690 V | A | 1 | | 1[2] |
| **DC load** | | | | | |
| **Rated operational current $I_e$/DC-12** | | | | | |
| • At rated operational voltage $U_e$ | 24 V | A | 10 | | 10 |
| | 60 V | A | 6 | | 6 |
| | 110 V | A | 3 | | 3 |
| | 125 V | A | 2 | | 2 |
| | 220 V | A | 1 | | 1 |
| | 440 V | A | 0.3 | | 0.3 |
| | 600 V | A | 0.15 | | 0.15[2] |
| **Rated operational current $I_e$/DC-13** | | | | | |
| • At rated operational voltage $U_e$ | 24 V | A | 10[1] | | 10[3] |
| | 60 V | A | 2 | | 2 |
| | 110 V | A | 1 | | 1 |
| | 125 V | A | 0.9 | | 0.9 |
| | 220 V | A | 0.3 | | 0.3 |
| | 440 V | A | 0.14 | | 0.14 |
| | 600 V | A | 0.1 | | 0.15[2] |
| **Contact reliability at 17 V, 1 mA**<br>According to IEC 60947-5-4 | | | Frequency of contact faults < $10^{-8}$ i.e. < 1 fault per 100 million operating cycles | | |

1) 3RH22, 3RH29, 3RT2...-....4, 3RT2...-....6: $I_e$ = 6 A at AC-15/AC-14 and DC-13.

2) With laterally mountable auxiliary switches, only the currents for rated operational voltages up to 500 V apply.

3) For laterally mountable auxiliary switches, DC-13/at 24 V: max. 6 A.

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## SIRIUS 3RT contactors, 3-pole up to 250 kW



| Type | 3RT contactors |
|---|---|
| Size | S00 to S12 |

### Electrical endurance of auxiliary contacts

It is assumed that the operating mechanisms are switched arbitrarily and not synchronously with the phase angle of the supply system switching operating mechanism.

The electrical contact endurance is mainly dependent on the breaking current.

***Sizes S00 to S3***

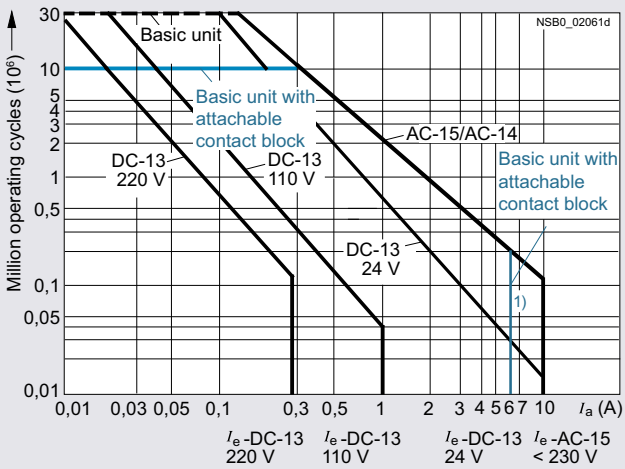


Diagram legend:
$I_a$ = Breaking current
$I_e$ = Rated operational current

The characteristic curves apply to:
- integrated auxiliary contacts on 3RT2.
- 3RH2911, 3RH2921 auxiliary switches[1)]

***Sizes S6 to S12***

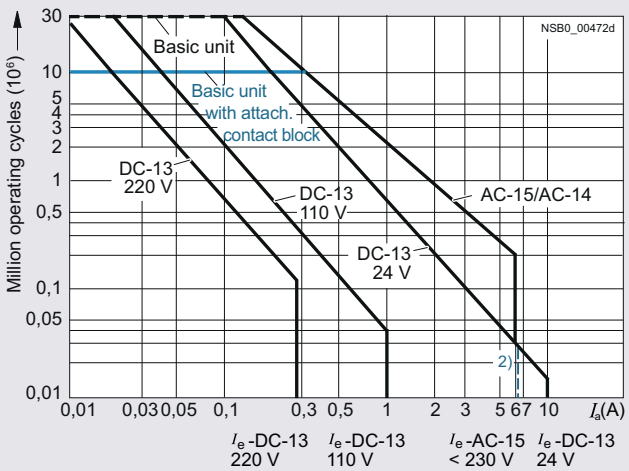


Diagram legend:
$I_a$ = Breaking current
$I_e$ = Rated operational current

The characteristic curves apply to:
- Integrated auxiliary contacts on 3RT10
- 3RH1921 auxiliary switches[3)]

[1)] 3RH22, 3RH29, 3RT2...-....4, 3RT2...-....6: $I_e$ = 6 A at AC-15/AC-14 and DC-13, 3RT2.4: $I_e$ = 6 A at AC-15/AC-14.

[2)] For laterally mountable auxiliary switches, DC-13/at 24 V: max. 6 A.

[3)] With laterally mountable auxiliary switches, the currents for rated operational voltages up to 500 V apply.

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Type
Size

**3RT2 contactors**
**S00 and S0**

## Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching low inductive or non-inductive AC loads (AC-1) and motor-driven loads (AC-3 and AC-3e) depending on the breaking current and rated operational voltage. It is assumed that the operating mechanisms are switched arbitrarily and not synchronously with the phase angle of the supply system switching operating mechanism.

The rated operational current $I_e$ complies with utilization category AC-4 (breaking 6 times the rated operational current) and is intended for a contact endurance of approximately 200 000 operating cycles.

If a shorter contact endurance is sufficient, the rated operational current $I_e$/AC-4 can be increased.

If the contacts are used for mixed operation, i.e. normal switching (breaking the rated operational current according to utilization category AC-3 and AC-3e) in combination with intermittent inching (breaking several times the rated operational current according to utilization category AC-4), the contact endurance can be calculated approximately from the following equation:

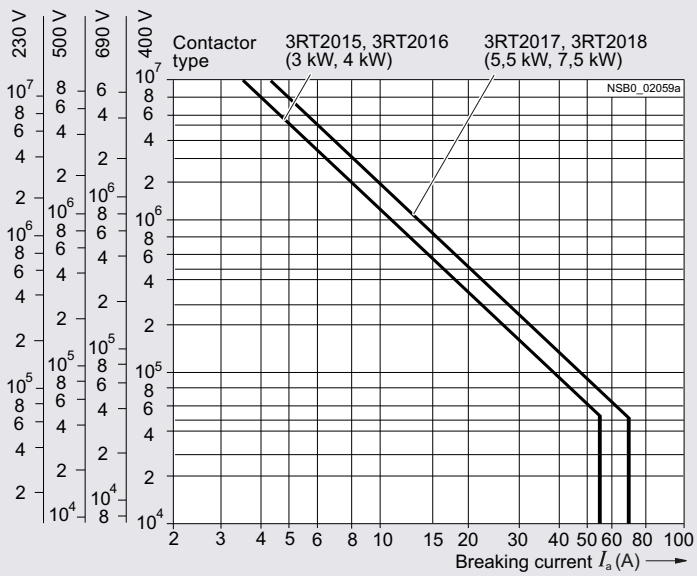
$$X = \frac{A}{1 + \frac{C}{100}\left(\frac{A}{B} - 1\right)}$$

Characters in the equation:

*X* Contact endurance for mixed operation in operating cycles
*A* Contact endurance for normal operation ($I_a = I_e$) in operating cycles
*B* Contact endurance for inching ($I_a$ = multiple of $I_e$) in operating cycles
*C* Inching operations as a percentage of total switching operations

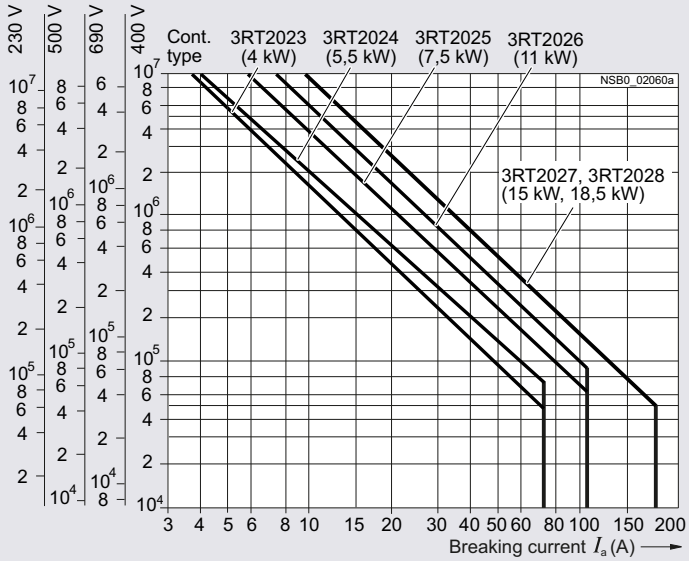
***Size S00***

Operating cycles at




***Size S0***

Operating cycles at



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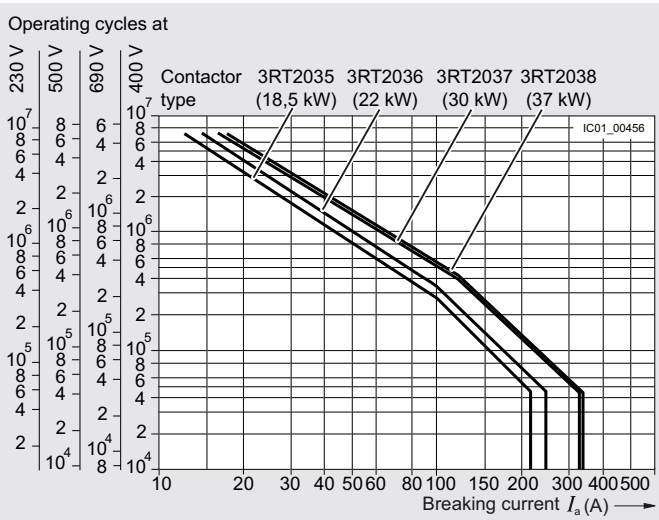
3

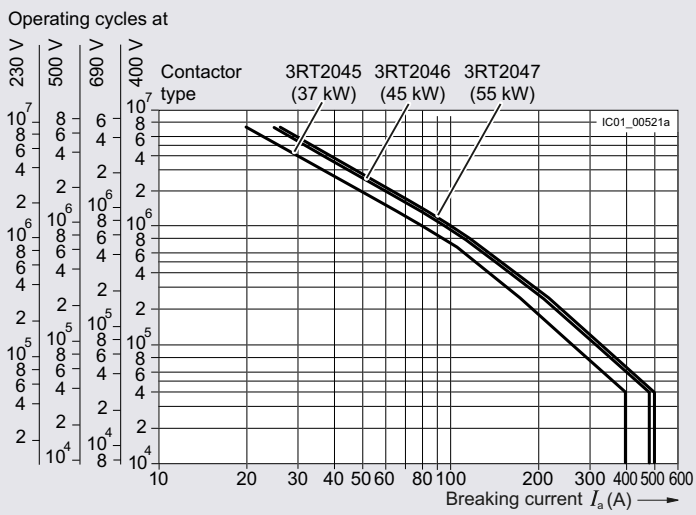
| Type | 3RT contactors |
|---|---|
| Size | S2 to S12 |

**Contact endurance of main contacts (continued)**

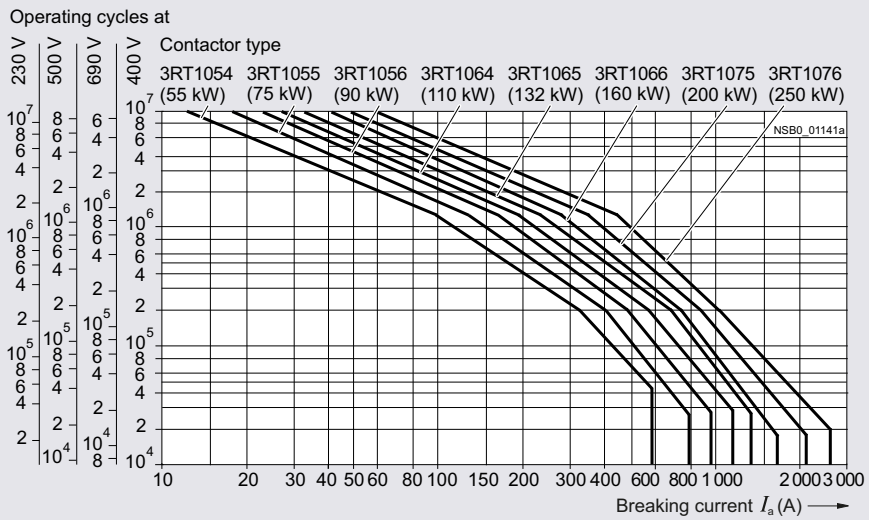
***Size S2***




***Size S3***




***Sizes S6 to S12***



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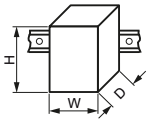
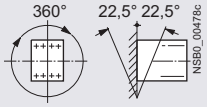
| | | | |
|---|---|---|---|
| | | | **Contactors** |
| Type | | | **3RT2015, 3RT2016** \| **3RT2017, 3RT2018** |
| Size | | | **S00** |
| **General data** | | | |
| **Dimensions (W x H x D)** |   | | |
| • Basic unit | | | |
| - Screw terminals | | mm | 45 x 58 x 73 |
| - Spring-loaded terminals | | mm | 45 x 70 x 73 |
| • Basic unit with mounted auxiliary switch | | | |
| - Screw terminals | | mm | 45 x 58 x 117 |
| - Spring-loaded terminals | | mm | 45 x 70 x 121 |
| • Basic unit with mounted function module or solid-state time-delayed auxiliary switch | | | |
| - Screw terminals | | mm | 45 x 58 x 147 |
| - Spring-loaded terminals | | mm | 45 x 70 x 147 |
| **Permissible mounting position** | | | |
| The contactors are designed for operation on a vertical mounting surface. |   | | |
| Upright mounting position | | | Special version required |
| **Mechanical endurance** | | | |
| • Basic unit | | Operating cycles | 30 million |
| - With mounted auxiliary switch | | Operating cycles | 10 million |
| - With solid-state compatible auxiliary switch | | Operating cycles | 5 million |
| **Electrical endurance** | | | For contact endurance of the main contacts, see page 3/27. |
| **Rated insulation voltage $U_i$** (pollution degree 3) | | V | 690 |
| **Rated impulse withstand voltage $U_{imp}$** | | | |
| • Auxiliary circuit | | kV | 6 |
| • Main circuit | | kV | 6 |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | | V | 400 |
| **Mirror contacts** | | | |
| A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact. | | | |
| • 3RT2.1 (removable auxiliary switch) | | | Yes, in the basic unit as well as between the basic unit and the mounted auxiliary switch according to IEC 60947-4-1 Annex F |
| • 3RH2919-.NF.. solid-state compatible auxiliary switches | | | No mirror contact for size S00 |
| **Ambient temperature** | | | |
| • During operation | | °C | -25 ... +60 |
| • During storage | | °C | -55 ... +80 |

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## SIRIUS 3RT contactors, 3-pole up to 250 kW

| | | | Contactors | |
|---|---|---|---|---|
| Type | | | 3RT2015, 3RT2016 | 3RT2017, 3RT2018 |
| Size | | | S00 | |
| **Short-circuit protection** | | | | |
| **Main circuit** | | | | |
| • Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1 | | | | |
| - Type of coordination "1" | | A | 35 | 50 |
| - Type of coordination "2" | | A | 20 | 25 |
| - Weld-free (test conditions according to IEC 60947-4-1) | | A | 10 | |
| • Miniature circuit breaker (up to 230 V) with C characteristic Short-circuit current 1 kA, type of coordination "1" | | A | 10 | |
| **Auxiliary circuit** | | | | |
| Short-circuit test according to IEC 60947-5-1 | | | | |
| • With fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k$ = 1 kA | | A | 10 | |
| • With 230 V miniature circuit breaker, C characteristic with short-circuit current $I_k$ = 400 A | | A | 6 | |
| Short-circuit protection for contactors with overload relays | | | See Configuration Manual for load feeders | |
| Short-circuit protection for fuseless load feeders | | | See 3RA2 load feeders, page 8/5 onwards | |
| **Control** | | | | |
| **Solenoid coil operating range** | | | | |
| • AC operation | 50 Hz | | 0.8 ... 1.1 x $U_s$ | |
| | 60 Hz | | 0.85 ... 1.1 x $U_s$ | |
| • DC operation | Up to 50 °C | | 0.8 ... 1.1 x $U_s$ | |
| | Up to 60 °C | | 0.85 ... 1.1 x $U_s$ | |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | |
| • AC operation, 50/60 Hz, standard version | | | | |
| - Closing | | VA | 27/24.3 | 37/33 |
| - P.f. | | | 0.8/0.75 | |
| - Closed | | VA | 4.2/3.3 | 5.7/4.4 |
| - P.f. | | | 0.25/0.25 | |
| • AC operation, 50 Hz, for USA/Canada | | | | |
| - Closing | | VA | 26.4 | 36 |
| - P.f. for closing | | | 0.81 | 0.8 |
| - Closed | | VA | 4.4 | 5.9 |
| - P.f. for closed | | | 0.24 | |
| • AC operation, 60 Hz, for USA/Canada | | | | |
| - Closing | | VA | 31.7 | 43 |
| - P.f. for closing | | | 0.81 | 0.8 |
| - Closed | | VA | 4.8 | 6.5 |
| - P.f. for closed | | | 0.25 | |
| • DC operation (closing = closed) | | W | 4 | |
| **Permissible residual current of the electronics** (with 0 signal) | | | | |
| • AC operation | | | < 3 mA x (230 V/$U_s$)[1] | < 4 mA x (230 V/$U_s$)[1] |
| • DC operation | | | < 10 mA x (24 V/$U_s$)[1] | |

[1] The 3RT2916-1GA00 additional load module is recommended for higher residual currents, see page 3/114.

| | | Coupling contactors | | | | | |
|---|---|---|---|---|---|---|---|
| Type | | 3RT201.-.HB4. | 3RT201.-.JB4. | 3RT201.-.KB4. | 3RT201.-.MB4.-0KT0 | 3RT201.-.VB4. | 3RT201.-.SB4. |
| Size | | S00 | | | | | |
| **Control** | | | | | | | |
| **Solenoid coil operating range** | | 0.7 ... 1.25 x $U_s$ | | | 0.85 ... 1.85 x $U_s$ | | |
| **Power consumption of the solenoid coils** (for cold coil) Closing = Closed | at $U_s$ 24 V DC W | 2.8 | | | 1.6 | | |
| **Permissible residual current** of the electronics (with 0 signal) | | < 6 mA x (24 V/$U_s$) | | | On request | | |
| **Upright mounting position** | | On request | | | | | |
| **Overvoltage configuration of the solenoid coil** | | No overvoltage damping | Integrated diode | Integrated suppressor diode | No overvoltage damping | Integrated diode | Integrated suppressor diode |

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| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **Contactors** | | | |
| Type | | | **3RT2015** | **3RT2016** | **3RT2017** | **3RT2018** |
| Size | | | **S00** | | | |
| **Rated data of the main contacts** | | | | | | |
| ***Load rating with AC*** | | | | | | |
| **Utilization category AC-3 and AC-3e** | | | | | | |
| • Rated operational currents $I_e$ | Up to 400 V | A | 7 | 9 | 12 | 16 |
| | 440 V | A | 7 | 9 | 11 | 14 |
| | 500 V | A | 6 | 7.7 | 9.2 | 12.4 |
| | 690 V | A | 4.9 | 6.7 | | 8.9 |
| • Rated power for slip-ring or squirrel-cage motors at 50 and 60 Hz | at 230 V | kW | 1.5 | 2.2 | 3 | 4 |
| | 400 V | kW | 3 | 4 | 5.5 | 7.5 |
| | 690 V | kW | 4 | 5.5 | | 7.5 |
| **Thermal load capacity** | 10 s current | A | 56 | 72 | 96 | 128 |
| **Power loss per main conducting path** | at $I_e$/AC-3/ AC-3e/400 V | W | 0.2 | 0.3 | 0.5 | 1 |
| **Utilization category AC-4** (at $I_a = 6 \times I_e$)[1] | | | | | | |
| • Maximum values | | | | | | |
| - Rated operational current $I_e$ | Up to 400 V | A | 6.5 | 8.5 | | 11.5 |
| - Rated power for squirrel-cage motors at 50 Hz and 60 Hz | Up to 400 V | kW | 3 | 4 | | 5.5 |
| • The following applies to a contact endurance of about 200 000 operating cycles: | | | | | | |
| - Rated operational currents $I_e$ | Up to 400 V | A | 2.6 | 4.1 | | 5.5 |
| | 690 V | A | 1.8 | 3.3 | | 4.4 |
| - Rated power for squirrel-cage motors at 50 Hz and 60 Hz | at 230 V | kW | 0.67 | 1.1 | | 1.5 |
| | 400 V | kW | 1.15 | 2 | | 2.5 |
| | 690 V | kW | 1.15 | 2.5 | | 3.5 |

[1] The data only apply to 3RT2516 and 3RT2517 contactors (2 NO + 2 NC) up to a rated operational voltage of 400 V.

| | | | |
|---|---|---|---|
| | | | **Contactors** |
| Type | | | **3RT2015 to 3RT2018** |
| Size | | | **S00** |
| **Conductor cross-sections** | | | |
| **Main conductors, auxiliary conductors and coil terminals** (1 or 2 conductors can be connected) | | | **Screw terminals** |
| • Solid or stranded | | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1]; max. 2 x 4 |
| • Finely stranded with end sleeve (DIN 46228) | | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] |
| • AWG cables, solid or stranded | | AWG | 2 x (20 ... 16)[1]; 2 x (18 ... 14)[1]; 2 x 12 |
| • Terminal screw | | | M3 (for Pozidriv size 2; ∅ 5 ... 6 mm) |
| • Tightening torque | | Nm | 0.8 ... 1.2 (7 ... 10.3 lb.in) |
| **Main conductors, auxiliary conductors and coil terminals**[2] (1 or 2 conductors can be connected) | | | **Spring-loaded terminals** |
| • Operating devices | | mm | 3.0 x 0.5 |
| • Solid or stranded | | $mm^2$ | 2 x (0.5 ... 4) |
| • Finely stranded with end sleeve (DIN 46228) | | $mm^2$ | 2 x (0.5 ... 2.5) |
| • Finely stranded without end sleeve | | $mm^2$ | 2 x (0.5 ... 2.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (20 ... 12) |
| **Auxiliary conductors for front and laterally mounted auxiliary switches**[2] (1 or 2 conductors can be connected) | | | |
| • Operating devices | | mm | 3.0 x 0.5 |
| • Solid or stranded | | $mm^2$ | 2 x (0.5 ... 2.5) |
| • Finely stranded with end sleeve (DIN 46228) | | $mm^2$ | 2 x (0.5 ... 1.5) |
| • Finely stranded without end sleeve | | $mm^2$ | 2 x (0.5 ... 2.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (20 ... 14) |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

[2] Max. outer diameter of the conductor insulation: 3.6 mm. On spring-loaded terminals with conductor cross-sections ≤ 1 $mm^2$, an insulation stop is recommended, see page 3/115.

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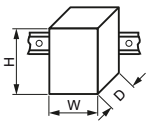
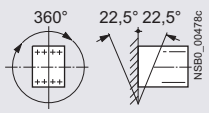
## SIRIUS 3RT contactors, 3-pole up to 250 kW



| | | Contactors | |
|---|---|---|---|
| Type | | 3RT2023 to 3RT2025 | 3RT2026 to 3RT2028 |
| Size | | S0 | |
| **General data** | | | |
| **Dimensions (W x H x D)** |  | | |
| AC operation | | | |
| • Basic unit | | | |
| - Screw terminals | mm | 45 x 85 x 97 | |
| - Spring-loaded terminals | mm | 45 x 102 x 97 | |
| • Basic unit with mounted auxiliary switch | | | |
| - Screw terminals | mm | 45 x 85 x 141 | |
| - Spring-loaded terminals | mm | 45 x 102 x 145 | |
| • Basic unit with mounted function module or solid-state time-delayed auxiliary switch | | | |
| - Screw terminals | mm | 45 x 85 x 171 | |
| - Spring-loaded terminals | mm | 45 x 102 x 171 | |
| DC operation | | | |
| • Basic unit | | | |
| - Screw terminals | mm | 45 x 85 x 107 | |
| - Spring-loaded terminals | mm | 45 x 102 x 107 | |
| • Basic unit with mounted auxiliary switch | | | |
| - Screw terminals | mm | 45 x 85 x 151 | |
| - Spring-loaded terminals | mm | 45 x 102 x 155 | |
| • Basic unit with mounted function module or solid-state time-delayed auxiliary switch | | | |
| - Screw terminals | mm | 45 x 85 x 181 | |
| - Spring-loaded terminals | mm | 45 x 102 x 181 | |
| **Permissible mounting position** | | | |
| The contactors are designed for operation on a vertical mounting surface. | |   | |
| Upright mounting position | | Special version required, also applies for 3RT202.-.K.40 coupling contactors | |
| **Mechanical endurance** | | | |
| • Basic unit and basic unit with mounted auxiliary switch | Operating cycles | 10 million | |
| • Basic unit with solid-state compatible auxiliary switch | Operating cycles | 5 million | |
| **Electrical endurance** | | For contact endurance of the main contacts, see page 3/27. | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 690 | |
| **Rated impulse withstand voltage $U_{imp}$** | | | |
| • Auxiliary circuit | kV | 6 | |
| • Main circuit | kV | 6 | |
| **Protective separation** between the coil and the main contacts (according to IEC 60947-1, Annex N) | V | 400 | |
| **Mirror contacts** | | | |
| A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact. | | | |
| • Integrated auxiliary switches | | Yes, according to IEC 60947-4-1, Annex F | |
| • 3RT2.2. (removable auxiliary switch) | | Yes, according to IEC 60947-4-1, Annex F | |
| **Permissible ambient temperature** | | | |
| • During operation | °C | -25 ... +60 | |
| • During storage | °C | -55 ... +80 | |

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| | | | | | |
|---|---|---|---|---|---|
| | | | **Contactors** | | |
| Type | | | **3RT2023 to 3RT2025** | **3RT2026** | **3RT2027, 3RT2028** |
| Size | | | **S0** | | |
| **Short-circuit protection** | | | | | |
| **Main circuit** | | | | | |
| • Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1 | | | | | |
| - Type of coordination "1" | | A | 63 | 100 | 125 |
| - Type of coordination "2" | | A | 25 | 35 | 50 |
| - Weld-free (test conditions according to IEC 60947-4-1) | | A | 10 | 16 | |
| • Miniature circuit breaker with C characteristic (short-circuit current 3 kA, type of coordination "1") | | A | 25 | 32 | 40 |
| **Auxiliary circuit** | | | | | |
| • Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE (weld-free protection at $I_k \leq 1$ kA) | | A | 10 | | |
| • 230 V miniature circuit breaker, C characteristic (short-circuit current $I_k < 400$ A) | | A | 10 | | |
| Short-circuit protection for contactors with overload relays | | | See Configuration Manual for load feeders | | |
| Short-circuit protection for fuseless load feeders | | | See 3RA2 load feeders, page 8/5 onwards | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **Contactors** | | | |
| Type | | | **3RT2023 to 3RT2025** | **3RT2026 to 3RT2028** | **3RT202.-.NB3** | **3RT202.-.NF3.** | **3RT202.-.NP3** |
| Size | | | **S0** | | | | |
| **Control** | | | | | | | |
| **Type of operating mechanism** | | | AC or DC | | AC/DC | | |
| **Solenoid coil operating range** | AC/DC | | 0.8 ... 1.1 x $U_s$ [1] | | 0.7 ... 1.3 x $U_s$ [2] | | |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | | | |
| • AC operation, 50 Hz, standard version | | | | | | | |
| - Closing | | VA | 65 | 77 | 6.6 | 11.9 | 12.7 |
| - P.f. | | | 0.82 | | 0.98 | | |
| - Closed | | VA | 7.6 | 9.8 | 1.9 | 1.6 | 3.9 |
| - P.f. | | | 0.25 | | 0.86 | 0.79 | 0.51 |
| • AC operation, 50/60 Hz, standard version | | | | | | | |
| - Closing | | VA | 68/67 | 81/79 | 6.6/6.7 | 11.9/12.0 | 12.7/14.7 |
| - P.f. | | | 0.72/0.74 | | 0.98/0.98 | | |
| - Closed | | VA | 7.9/6.5 | 10.5/8.5 | 1.9/2.0 | 1.6/1.8 | 3.9/4.3 |
| - P.f. | | | 0.25/0.28 | | 0.86/0.82 | 0.79/0.74 | 0.51/0.56 |
| • AC operation, 50 Hz, for USA/Canada | | | | | | | |
| - Closing | | VA | 65 | 77 | -- | | |
| - P.f. | | | 0.82 | 0.82 | -- | | |
| - Closed | | VA | 7 [3]/7.6 | 9.8 | -- | | |
| - P.f. | | | 0.25 | 0.28 | -- | | |
| • AC operation, 60 Hz, for USA/Canada | | | | | | | |
| - Closing | | VA | 73 | 87 | -- | | |
| - P.f. | | | 0.76 | | -- | | |
| - Closed | | VA | 7.2 | 9.4 | -- | | |
| - P.f. | | | 0.28 | | -- | | |
| • DC operation (closing = closed) | | W | 5.9/5.9 | | 5.9/1.4 | 10.2/1.3 | 14.3/1.9 |
| **Permissible residual current of the electronics** (with 0 signal) | | | | | | | |
| • AC operation | | mA | < 6 mA x (230 V/$U_s$) | | < 7 mA x (230 V/$U_s$) | | |
| • DC operation | | mA | < 16 mA x (24 V/$U_s$) | | | | |

[1] Coil operating range
- At 50 Hz: 0.8 to 1.1 x $U_s$
- At 60 Hz: 0.85 to 1.1 x $U_s$.

[2] The following applies to $U_{s\,max}$ = 280 V: Upper limit = 1.1 x $U_{s\,max}$

[3] Value applies to 3RT2023 contactor at 50 Hz AC.

| | | | | |
|---|---|---|---|---|
| | | | **Coupling contactors** | |
| Type | | | **3RT202.-.KB4.** | |
| Size | | | **S0** | |
| **Control** | | | | |
| **Solenoid coil operating range** | | | 0.7 ... 1.25 x $U_s$ | |
| **Power consumption of the solenoid coils** (for cold coil) Closing = Closed | at $U_s$ 24 V DC | W | 4.5 | |
| **Permissible residual current** of the electronics (with 0 signal) | | | < 10 mA x (24 V/$U_s$) | |
| **Overvoltage configuration of the solenoid coil** | | | Integrated varistor *U* | |

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## SIRIUS 3RT contactors, 3-pole up to 250 kW



| Type | | | Contactors 3RT2023 | 3RT2024 | 3RT2025 | 3RT2026 | 3RT2027 | 3RT2028 |
|---|---|---|---|---|---|---|---|---|
| Size | | | S0 | | | | | |
| **Rated data of the main contacts** | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | |
| **Utilization category AC-3 and AC-3e** | | | | | | | | |
| • Rated operational currents $I_e$ | Up to 400 V | A | 9 | 12 | 17 | 25 | 32 | 38 |
| | 440 V | A | 9 | 12 | 17 | 22 | 32 | 35 |
| | 500 V | A | 9 | 12 | 17 | 18 | 32 | |
| | 690 V | A | 9 | | 13 | | 21 | |
| • Rated power for slip-ring or squirrel-cage motors at 50 and 60 Hz | at 230 V | kW | 2.2 | 3 | 4 | 5.5 | 7.5 | 11 |
| | 400 V | kW | 4 | 5.5 | 7.5 | 11 | 15 | 18.5 |
| | 690 V | kW | 7.5 | | 11 | | 18.5 | |
| **Thermal load capacity** | 10 s current | A | 80 | 110 | 150 | 200 | 260 | 304 |
| **Power loss per main conducting path** | at $I_e$/AC-3/ AC-3e/400 V | W | 0.2 | 0.3 | 0.6 | 1.9 | 2.3 | 3.2 |
| **Utilization category AC-4** (at $I_a = 6 \times I_e$) | | | | | | | | |
| • Maximum values: | | | | | | | | |
| - Rated operational current $I_e$ | Up to 400 V | A | 8.5 | 12.5 | 15.5 | | 22 | |
| - Rated power for squirrel-cage motors at 50 Hz and 60 Hz | at 400 V | kW | 4 | 5.5 | 7.5 | | 11 | |
| • The following applies to a contact endurance of about 200 000 operating cycles: | | | | | | | | |
| - Rated operational currents $I_e$ | Up to 400 V | A | 4.1 | 5.5 | 7.7 | 9 | 12 | |
| | 690 V | A | 3.3 | 5.5 | 7.7 | 9 | 12 | |
| - Rated power for squirrel-cage motors at 50 Hz and 60 Hz | at 110 V | kW | 0.5 | 0.73 | 1 | 1.2 | 1.6 | |
| | 230 V | kW | 1.1 | 1.5 | 2 | 2.5 | 3.4 | |
| | 400 V | kW | 2 | 2.6 | 3.5 | 4.4 | 6 | |
| | 690 V | kW | 2.5 | 4.6 | 6 | 7.7 | 10.3 | |

| Type | | Contactors 3RT2023 to 3RT2028 |
|---|---|---|
| Size | | S0 |
| **Conductor cross-sections** | | |
| **Main conductors** (1 or 2 conductors can be connected) | | **Screw terminals** |
| • Solid or stranded | $mm^2$ | 2 x (1 ... 2.5)[1]; 2 x (2.5 ... 10)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (1 ... 2.5)[1]; 2 x (2.5 ... 6)[1]; 1 x 10 |
| • AWG cables, solid or stranded | AWG | 2 x (16 ... 12)[1]; 2 x (14 ... 8)[1] |
| • Terminal screws | | M4 (for Pozidriv size 2; ∅ 5 ... 6 mm) |
| - Tightening torque | Nm | 2 ... 2.5 (18 ... 22 lb.in) |
| **Auxiliary conductors** (1 or 2 conductors can be connected) | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1]; 2 x (18 ... 14)[1] |
| • Terminal screws | | M3 (for Pozidriv size 2; ∅ 5 ... 6 mm) |
| - Tightening torque | Nm | 0.8 ... 1.2 (7 ... 10.3 lb.in) |
| **Main conductors**[2] (1 or 2 conductors can be connected) | | **Spring-loaded terminals** |
| • Operating devices | mm | 3.0 x 0.5 |
| • Solid or stranded | $mm^2$ | 2 x (1 ... 10) |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (1 ... 6) |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (1 ... 6) |
| • AWG cables, solid or stranded | AWG | 2 x (18 ... 8) |
| **Auxiliary conductors**[2] (1 or 2 conductors can be connected) | | |
| • Operating devices | | 3.0 x 0.5 |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 2.5) |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5) |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

[2] Max. outer diameter of the conductor insulation: 6.4 mm.
On spring-loaded terminals with conductor cross-sections ≤ 1 $mm^2$, an insulation stop is recommended, see page 3/115.

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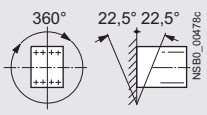
| | | | | | |
|---|---|---|---|---|---|
| Type | | **Contactors** | | | |
| | | **3RT2035** | **3RT2036** | **3RT2037** | **3RT2038** |
| Size | | **S2** | | | |
| **General data** | | | | | |
| **Dimensions (W x H x D)** | | | | | |
| • Basic unit<br>- Screw/spring-loaded terminals | mm | 55 x 114 x 130 | | | |
| • Basic unit with mounted auxiliary switch<br>- Screw terminals<br>- Spring-loaded terminals | mm<br>mm | 55 x 114 x 174<br>55 x 114 x 178 | | | |
| • Basic unit with mounted function module or solid-state time-delayed auxiliary switch<br>- Screw/spring-loaded terminals | mm | 55 x 114 x 204 | | | |
| **Permissible mounting position**<br>The contactors are designed for operation on a vertical mounting surface. | |  | | | |
| Upright mounting position | | Special version required | | | |
| **Mechanical endurance** | | | | | |
| • Basic units and basic units with mounted auxiliary switch | Operating cycles | 10 million (3RT203.-.S.30: 5 million) | | | |
| • Basic units with solid-state compatible auxiliary switch | Operating cycles | 5 million | | | |
| **Electrical endurance** | | For contact endurance of the main contacts, see page 3/28. | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 690 | | | |
| **Rated impulse withstand voltage $U_{imp}$** | | | | | |
| • Auxiliary circuit | kV | 6 | | | |
| • Main circuit | kV | 6 | | | |
| **Protective separation** between the coil and the main contacts (according to IEC 60947-1, Annex N) | V | 400 | | | |
| **Mirror contacts**<br>A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact. | | | | | |
| • Integrated auxiliary switches | | Yes, according to IEC 60947-4-1, Annex F | | | |
| • 3RT2.3. (removable auxiliary switch) | | Yes, according to IEC 60947-4-1, Annex F | | | |
| **Permissible ambient temperature** | | | | | |
| • During operation | °C | -25 ... +60 | | | |
| • During storage | °C | -55 ... +80 | | | |
| **Short-circuit protection** | | | | | |
| **Main circuit** | | | | | |
| • Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1 | | | | | |
| - Type of coordination "1" | A | 160 | | 250 | |
| - Type of coordination "2" | A | 80 | | 125 | 160 |
| - Weld-free (test conditions according to IEC 60947-4-1) | A | 16 | 25 | 50 | |
| **Auxiliary circuit** | | | | | |
| • Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE (weld-free protection at $I_k \leq 1$ kA) | A | 10 | | | |
| • 230 V miniature circuit breaker, C characteristic (short-circuit current $I_k < 400$ A) | A | 10 | | | |
| Short-circuit protection for contactors with overload relays | | See Configuration Manual for load feeders | | | |
| Short-circuit protection for fuseless load feeders | | See 3RA2 load feeders, page 8/5 onwards | | | |

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## SIRIUS 3RT contactors, 3-pole up to 250 kW



| | | Contactors | | | Coupling contactors |
|---|---|---|---|---|---|
| Type | | 3RT203.-.A..., 3RT203.-.C... | 3RT203.-.N.3. | 3RT203.-.S.3. | 3RT203.-.KB4. |
| Size | | S2 | | | |
| **Control** | | | | | |
| **Type of operating mechanism** | | AC | AC/DC | | DC |
| **Solenoid coil operating range** | | | | | |
| • AC operation[1] | | 0.8 ... 1.1 x $U_s$ | -- | | |
| • AC/DC operation[1] | | -- | 0.8 ... 1.1 x $U_s$ | | -- |
| • DC operation | | -- | | | 0.8 ... 1.2 x $U_s$ |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | |
| • AC operation, 50 Hz, standard version | | | | | |
| - Closing | VA | 190 | -- | | |
| - P.f. | | 0.72 | -- | | |
| - Closed | VA | 16 | -- | | |
| - P.f. | | 0.37 | -- | | |
| • AC operation, 50/60 Hz, standard version | | | | | |
| - Closing | VA | 210/188 | -- | | |
| - P.f. | | 0.69/0.65 | -- | | |
| - Closed | VA | 17.2/16.5 | -- | | |
| - P.f. | | 0.36/0.39 | -- | | |
| • AC operation, 60 Hz, for USA/Canada | | | | | |
| - Closing | VA | 212 | -- | | |
| - P.f. | | 0.67 | -- | | |
| - Closed | VA | 18.5 | -- | | |
| - P.f. | | 0.37 | -- | | |
| • AC/DC operation | | | | | |
| - Closing for AC operation | VA | -- | 40 | | -- |
| - P.f. | | -- | 0.95 | | -- |
| - Closed for AC operation | VA | -- | 2 | | -- |
| - P.f. | | -- | 0.95 | 0.7 | -- |
| - Closing for DC operation | VA | -- | 23[2] | 40 | -- |
| - Closed for DC operation | VA | -- | 1 | 1.6 | -- |
| • DC operation | | | | | |
| - Closing for DC operation | W | -- | | | 21.5[3] |
| - Closed for DC operation | W | -- | | | 1 |
| **Permissible residual current of the electronics** (with 0 signal) | | | | | |
| • AC/DC operation | mA | -- | < 20 | | -- |
| • DC operation | mA | -- | | | < 20 |
| **Overvoltage configuration of the solenoid coil** | | -- | Integrated varistor U | | |
| **PLC control input** according to IEC 60947-1 | | | | | |
| • Solid-state operating mechanism | | -- | | Type 1 | -- |
| • Rated voltage | V DC | -- | | 24 | -- |
| • Operating range | V DC | -- | | 17 ... 30 | -- |
| • Power consumption | mA | -- | | ≤ 30 | -- |
| • Recovery time after mains failure, typical | s | -- | | 2 | -- |

1) Coil operating range
- At 50 Hz: 0.8 to 1.1 x $U_s$,
- At 60 Hz: 0.85 to 1.1 x $U_s$.

2) In the case of AC/DC coils, increased pickup currents (2.6 A on average) arise during the first 230 ms. For direct control by PLC, we therefore recommend special coupling contactors with reduced power consumption. The connection of one 3RT203.-.KB4. coupling contactor is possible per PLC output port with an output current of 2 A, see page 3/59.

3) In the case of DC coils, increased pickup currents (2.1 A on average) arise during the first 230 ms.

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| Type | | | Contactors 3RT2035 | 3RT2036 | 3RT2037 | 3RT2038 |
|---|---|---|---|---|---|---|
| Size | | | S2 | | | |
| **Rated data of the main contacts** | | | | | | |
| ***Load rating with AC*** | | | | | | |
| **Utilization category AC-3 and AC-3e** | | | | | | |
| • Rated operational currents $I_e$ | Up to 400 V | A | 41 | 51 | 65 | 80 |
| | 440 V | A | 41 | 51 | 65 | 80 |
| | 500 V | A | 41 | 51 | 65 | 80 |
| | 690 V | A | 24 | | 47 | 58 |
| • Rated power for slip-ring or squirrel-cage motors at 50 and 60 Hz | at 230 V | kW | 11 | 15 | 18.5 | 22 |
| | 400 V | kW | 18.5 | 22 | 30 | 37 |
| | 690 V | kW | 22 | | 37 | 45 |
| **Thermal load capacity** | 10 s current | A | 400 | 420 | 520 | 640 |
| **Power loss per main conducting path** | at $I_e$/AC-3/ AC-3e/400 V | W | 2.2 | 4 | 3.8 | 5.7 |
| **Utilization category AC-4** (at $I_a = 6 \times I_e$) | | | | | | |
| • Maximum values | | | | | | |
| - Rated operational current $I_e$ | Up to 400 V | A | 35 | 41 | 55 | |
| - Rated power for squirrel-cage motors at 50 Hz and 60 Hz | at 400 V | kW | 18.5 | 22 | 30 | |
| • The following applies to a contact endurance of about 200 000 operating cycles: | | | | | | |
| - Rated operational currents $I_e$ | Up to 400 V | A | 22 | 24 | 28 | 30 |
| | 690 V | A | 18.5 | 20 | 22 | 24 |
| - Rated power for squirrel-cage motors at 50 Hz and 60 Hz | at 110 V | kW | 3.2 | 3.5 | 4.1 | 4.3 |
| | 230 V | kW | 6.7 | 7.3 | 8.5 | 9.1 |
| | 400 V | kW | 11.6 | 12.6 | 14.7 | 15.8 |
| | 690 V | kW | 16.8 | 18.2 | 20 | 21.8 |

| Type | | Contactors 3RT2035 to 3RT2038 |
|---|---|---|
| Size | | S2 |
| **Conductor cross-sections** | | |
| **Main conductors** (1 or 2 conductors can be connected) | | **Screw terminals** |
| • Solid or stranded | $mm^2$ | 2 x (1 ... 35)[1]; 1 x (1 ... 50)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (1 ... 25)[1]; 1 x (1 ... 35)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (18 ... 2)[1]; 1 x (18 ... 1)[1] |
| • Terminal screws | | Pozidriv size 2; ∅ 5 ... 6 mm |
| - Tightening torque | Nm | 3 ... 4.5 (27 ... 40 lb.in) |
| **Auxiliary conductors and control conductors** (1 or 2 conductors can be connected) | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1]; 2 x (18 ... 14)[1] |
| • Terminal screws | | M3 (for Pozidriv size 2; ∅ 5 ... 6 mm) |
| - Tightening torque | Nm | 0.8 ... 1.2 (7 ... 10.3 lb.in) |
| **Auxiliary and control conductors**[2] (1 or 2 conductors can be connected) | | **Spring-loaded terminals** |
| • Operating devices | mm | 3.0 x 0.5 |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 2.5) |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5) |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

[2] Max. outer diameter of the conductor insulation: 3.6 mm.
On spring-loaded terminals with conductor cross-sections ≤ 1 $mm^2$, an insulation stop is recommended, see page 3/115.

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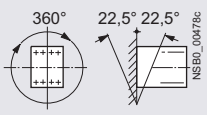
## SIRIUS 3RT contactors, 3-pole up to 250 kW



| | | Contactors | | |
|---|---|---|---|---|
| Type | | 3RT2045 | 3RT2046 | 3RT2047 |
| Size | | S3 | | |
| **General data** | | | | |
| **Dimensions (W x H x D)** | | | | |
| • Basic unit<br>- Screw/spring-loaded terminals | mm | 70 x 140 x 152 | | |
| • Basic unit with mounted auxiliary switch<br>- Screw terminals<br>- Spring-loaded terminals | mm<br>mm | 70 x 140 x 196<br>70 x 140 x 200 | | |
| • Basic unit with mounted function module or solid-state time-delayed auxiliary switch<br>- Screw/spring-loaded terminals | mm | 70 x 140 x 226 | | |
| **Permissible mounting position**<br>The contactors are designed for operation on a vertical mounting surface. | |  | | |
| Upright mounting position | | Special version required | | |
| **Mechanical endurance** | | | | |
| • Basic units and basic units with mounted auxiliary switch | Operating cycles | 10 million | | |
| • Basic units with solid-state compatible auxiliary switch | Operating cycles | 5 million | | |
| **Electrical endurance** | | For contact endurance of the main contacts, see page 3/28. | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 1 000 (3RT20..-.....-0CC0: 690) | | |
| **Rated impulse withstand voltage $U_{imp}$** | | | | |
| • Auxiliary circuit | kV | 6 | | |
| • Main circuit | kV | 8 | | |
| **Protective separation** between the coil and the main contacts (according to IEC 60947-1, Annex N) | V | 690 | | |
| **Mirror contacts**<br>A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact. | | | | |
| • Integrated auxiliary switches | | Yes, according to IEC 60947-4-1, Annex F | | |
| • 3RT2.4. (removable auxiliary switch) | | Yes, according to IEC 60947-4-1, Annex F | | |
| **Permissible ambient temperature** | | | | |
| • During operation | °C | -25 ... +60 | | |
| • During storage | °C | -55 ... +80 | | |
| **Short-circuit protection** | | | | |
| **Main circuit** | | | | |
| • Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1 | | | | |
| - Type of coordination "1" | A | 250 | | |
| - Type of coordination "2" | A | 160 | 160 | 200 |
| - Weld-free (test conditions according to IEC 60947-4-1) | A | On request | | |
| **Auxiliary circuit** | | | | |
| • Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE (weld-free protection at $I_k \leq 1$ kA) | A | 10 | | |
| • 230 V miniature circuit breaker, C characteristic (short-circuit current $I_k < 400$ A) | A | 10 | | |
| Short-circuit protection for contactors with overload relays | | See Configuration Manual for load feeders | | |
| Short-circuit protection for fuseless load feeders | | See 3RA2 load feeders, page 8/5 onwards | | |

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| | | Contactors | | | Coupling contactors |
|---|---|---|---|---|---|
| Type | | 3RT204.-.A..., 3RT204.-.C... | 3RT204.-.N.3. | 3RT204.-.S.3. | 3RT204.-.KB4. |
| Size | | S3 | | | |
| **Control** | | | | | |
| **Type of operating mechanism** | | AC | AC/DC | | DC |
| **Solenoid coil operating range** | | | | | |
| • AC operation[1] | | 0.8 ... 1.1 x $U_s$ | -- | | |
| • AC/DC operation[1] | | -- | 0.8 ... 1.1 x $U_s$ | | -- |
| • DC operation | | -- | | | 0.8 ... 1.2 x $U_s$ |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | |
| • AC operation, 50 Hz, standard version | | | | | |
| - Closing | VA | 296 | -- | | |
| - P.f. | | 0.61 | -- | | |
| - Closed | VA | 19 | -- | | |
| - P.f. | | 0.38 | -- | | |
| • AC operation, 50/60 Hz, standard version | | | | | |
| - Closing | VA | 348/296 | -- | | |
| - P.f. | | 0.62/0.55 | -- | | |
| - Closed | VA | 25/18 | -- | | |
| - P.f. | | 0.35/0.41 | -- | | |
| • AC operation, 60 Hz, for USA/Canada | | | | | |
| - Closing | VA | 326 | -- | | |
| - P.f. | | 0.62 | -- | | |
| - Closed | VA | 22 | -- | | |
| - P.f. | | 0.38 | -- | | |
| • AC/DC operation | | | | | |
| - Closing for AC operation | VA | -- | 163 | 130 | -- |
| - P.f. | | -- | 0.95 | | -- |
| - Closed for AC operation | VA | -- | 3.1 | 2.4 | -- |
| - P.f. | | -- | 0.95 | 0.7 | -- |
| - Closing for DC operation | VA | -- | 76[2] | 130 | -- |
| - Closed for DC operation | VA | -- | 1.8 | | -- |
| • DC operation | | | | | |
| - Closing for DC operation | W | -- | | | 25[3] |
| - Closed for DC operation | W | -- | | | 0.9 |
| **Permissible residual current of the electronics** (with 0 signal) | | | | | |
| • AC/DC operation | mA | -- | < 20 | | -- |
| • DC operation | mA | -- | | | < 20 |
| **Overvoltage configuration of the solenoid coil** | | -- | Integrated varistor *U* | | |
| **PLC control input** according to IEC 60947-1 | | | | | |
| • Solid-state operating mechanism | | -- | | Type 1 | -- |
| • Rated voltage | V DC | -- | | 24 | -- |
| • Operating range | V DC | -- | | 17 ... 30 | -- |
| • Power consumption | mA | -- | | ≤ 30 | -- |
| • Recovery time after mains failure, typical | s | -- | | 2 | -- |

1) Coil operating range
- at 50 Hz: 0.8 to 1.1 x $U_s$
- at 60 Hz: 0.85 to 1.1 x $U_s$.

2) In the case of AC/DC coils, increased pickup currents (6.5 A on average) arise during the first 150 ms. For direct control by PLC, we therefore recommend special coupling contactors with reduced power consumption. The connection of one 3RT204.-.KB4. coupling contactor is possible per PLC output port with an output current of 2 A, see page 3/59.

3) In the case of DC coils, increased pickup currents (2.1 A on average) arise during the first 150 ms.

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## SIRIUS 3RT contactors, 3-pole up to 250 kW



| | | | Contactors | | |
|---|---|---|---|---|---|
| Type | | | 3RT2045 | 3RT2046 | 3RT2047 |
| Size | | | S3 | | |
| **Rated data of the main contacts** | | | | | |
| ***Load rating with AC*** | | | | | |
| **Utilization category AC-3 and AC-3e** | | | | | |
| • Rated operational currents $I_e$ | Up to 400 V | A | 80 | 95 | 110 |
| | 500 V | A | 80 | 95 | 110 |
| | 690 V | A | 58 | 78 | 98 |
| | 1 000 V | A | 30 | | |
| • Rated power for slip-ring or squirrel-cage motors at 50 and 60 Hz | at 230 V | kW | 22 | 22 | 30 |
| | 400 V | kW | 37 | 45 | 55 |
| | 690 V | kW | 55 | 75 | 90 |
| | 1 000 V | kW | 37 | | |
| **Thermal load capacity** | 10 s current | A | 760 | | 880 |
| **Power loss per main conducting path** | at $I_e$/AC-3/ AC-3e/400 V | W | 5.3 | 6.6 | 7.9 |
| **Utilization category AC-4** (at $I_a$ = 6 x $I_e$) | | | | | |
| • Maximum values | | | | | |
| - Rated operational current $I_e$ | Up to 400 V | A | 66 | 80 | 97 |
| - Rated power for squirrel-cage motors at 50 Hz and 60 Hz | at 400 V | kW | 37 | 45 | 55 |
| • The following applies to a contact endurance of about 200 000 operating cycles: | | | | | |
| - Rated operational currents $I_e$ | Up to 400 V | A | 34 | 42 | 46 |
| | 690 V | A | 24 | 30 | 36 |
| - Rated power for squirrel-cage motors at 50 Hz and 60 Hz | at 110 V | kW | 4.9 | 6.1 | 6.7 |
| | 230 V | kW | 10.4 | 12 | 14 |
| | 400 V | kW | 17.9 | 22 | 24.3 |
| | 690 V | kW | 21.8 | 27.4 | 32.9 |

| | | Contactors |
|---|---|---|
| Type | | 3RT2045 to 3RT2047 |
| Size | | S3 |
| **Conductor cross-sections** | | |
| **Main conductors** (1 or 2 conductors can be connected) | | Screw terminals |
| • Solid | $mm^2$ | 2 x (2.5 ... 16)[1] |
| • Stranded | $mm^2$ | 2 x (6 ... 16)[1]; 2 x (10 ... 50)[1]; 1 x (10 ... 70)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (2.5 ...35)[1]; 1 x (2.5 ... 50)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (10 ... 1/0)[1]; 1 x (10 ... 2/0)[1] |
| • Terminal screws | | Hexagon socket, size 4 |
| - Tightening torque | Nm | 4.5 ... 6 (40 ... 53 lb.in) |
| **Auxiliary conductors and control conductors** (1 or 2 conductors can be connected) | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1]; 2 x (18 ... 14)[1] |
| • Terminal screws | | M3 (for Pozidriv size 2; ∅ 5 ... 6 mm) |
| - Tightening torque | Nm | 0.8 ... 1.2 (7 ... 10.3 lb.in) |
| **Auxiliary and control conductors**[2] (1 or 2 conductors can be connected) | | Spring-loaded terminals |
| • Operating devices | mm | 3.0 x 0.5 |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 2.5) |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5) |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16) |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

[2] Max. outer diameter of the conductor insulation: 3.6 mm.
On spring-loaded terminals with conductor cross-sections ≤ 1 $mm^2$, an insulation stop is recommended, see page 3/115.

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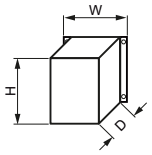
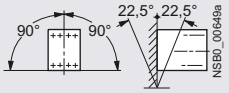
| | | Contactors | | | | |
|---|---|---|---|---|---|---|
| Type | | 3RT1054 | 3RT1055, 3RT1056 | 3RT1064 to 3RT1066 | 3RT1075 | 3RT1076 |
| Size | | S6 | | S10 | S12 | |
| **General data** | | | | | | |
| **Dimensions (W x H x D)**   | | | | | | |
| • Basic unit | mm | 120 x 172 x 170 | | 145 x 210 x 202 | 160 x 214 x 225 | |
| • Basic unit with mounted auxiliary switch | mm | 120 x 172 x 217 | | 145 x 210 x 251 | 160 x 214 x 271 | |
| **Permissible mounting position** The contactors are designed for operation on a vertical mounting surface.   | | | | | | |
| **Mechanical endurance** | Operating cycles | 10 million | | | | |
| **Electrical endurance** | | For contact endurance of the main contacts, see page 3/28. | | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 1 000 | | | | |
| **Rated impulse withstand voltage $U_{imp}$** | | | | | | |
| • Auxiliary circuit | kV | 6 | | | | |
| • Main circuit | kV | 8 | | | | |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | V | 690 | | | | |
| **Mirror contacts** A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact. | | Yes, according to IEC 60947-4-1, Annex F | | | | |
| **Permissible ambient temperature** | | | | | | |
| • During operation | °C | -25 ... +60 | | | | |
| • During storage | °C | -55 ... +80 | | | | |
| **Electromagnetic compatibility (EMC)** | | See page 3/21 | | | | |
| **Short-circuit protection** | | | | | | |
| **Main circuit** Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1 | | | | | | |
| • Type of coordination "1" | A | 355 | | 500 | 630 | |
| • Type of coordination "2" | A | 250 | 315 | 400 | 500 | |
| • Weld-free | A | 80 | 160 | 250 | | 315 |
| **Auxiliary circuit** Short-circuit test | | | | | | |
| • With fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k$ = 1 kA according to IEC 60947-5-1 | A | 10 | | | | |
| • With miniature circuit breakers with C characteristic with short-circuit current $I_k$ = 400 A | A | 10 | | | | |
| Short-circuit protection for contactors with overload relays | | See Configuration Manual for load feeders | | | | |

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## SIRIUS 3RT contactors, 3-pole up to 250 kW



| | | | Contactors | | |
|---|---|---|---|---|---|
| Type | | | **3RT105.** | **3RT106.** | **3RT107.** |
| Size | | | **S6** | **S10** | **S12** |
| **Control** | | | | | |
| **Operating range of the solenoid operating mechanism** | AC/DC | | 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$ | | |
| **Power consumption of the solenoid operating mechanism** (with cold coil and rated range $U_{s\,min}$ ... $U_{s\,max}$) | | | | | |
| • Standard operating mechanism (3RT10..-.A) | | | | | |
| - AC operation | Closing at $U_{s\,min}$ | VA/p.f. | 250/0.9 | 490/0.9 | 700/0.9 |
| | Closing at $U_{s\,max}$ | VA/p.f. | 300/0.9 | 590/0.9 | 830/0.9 |
| | Closed at $U_{s\,min}$ | VA/p.f. | 4.8/0.8 | 5.6/0.9 | 7.6/0.9 |
| | Closed at $U_{s\,max}$ | VA/p.f. | 5.8/0.8 | 6.7/0.9 | 9.2/0.9 |
| - DC operation | Closing at $U_{s\,min}$ | W | 300 | 540 | 770 |
| | Closing at $U_{s\,max}$ | W | 360 | 650 | 920 |
| | Closed at $U_{s\,min}$ | W | 4.3 | 6.1 | 8.5 |
| | Closed at $U_{s\,max}$ | W | 5.2 | 7.4 | 10 |
| • Solid-state operating mechanism (3RT10..-.N/-.P/-.S) | | | | | |
| - AC operation | Closing at $U_{s\,min}$ | VA/p.f. | 190/0.8 | 400/0.8 | 560/0.8 |
| | Closing at $U_{s\,max}$ | VA/p.f. | 280/0.8 | 530/0.8 | 750/0.8 |
| | Closed at $U_{s\,min}$ | VA/p.f. | 3.5/0.6 | 5.5/0.5 | 5.6/0.5 |
| | Closed at $U_{s\,max}$ | VA/p.f. | 4.8/0.6 | 8.5/0.4 | 9/0.4 |
| - DC operation | Closing at $U_{s\,min}$ | W | 250 | 440 | 600 |
| | Closing at $U_{s\,max}$ | W | 320 | 580 | 800 |
| | Closed at $U_{s\,min}$ | W | 2.1 | 2.8 | 3 |
| | Closed at $U_{s\,max}$ | W | 2.8 | 3.4 | 3.6 |
| **PLC control input** according to IEC 60947-1 | | | | | |
| • Solid-state operating mechanism | 3RT10..-.N/-.P | | Type 2 | | |
| | 3RT10..-.S | | Type 1 | | |
| • Rated voltage | | V DC | 24 | | |
| • Operating range | | V DC | 17 ... 30 | | |
| • Power consumption | | mA | ≤ 30 | | |
| • Recovery time after mains failure, typical (applicable only for fail-safe version 3RT10..-.S) | | s | 2 | | |

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| | | Contactors | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Type | | 3RT1054 | 3RT1055 | 3RT1056 | 3RT1064 | 3RT1065 | 3RT1066 | 3RT1075 | 3RT1076 |
| Size | | S6 | | | S10 | | | S12 | |
| **Rated data of the main contacts** | | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | | |
| **Utilization category AC-3 and AC-3e** | | | | | | | | | |
| • Rated operational currents $I_e$ | | | | | | | | | |
| - Up to 500 V | A | 115 | 150 | 185 | 225 | 265 | 300 | 400 | 500 |
| - At 690 V | A | 115 | 150 | 170 | 225 | 265 | 280 | 400 | 450 |
| - At 1 000 V | A | 53 | 65 | 65 | 68 | 95 | 95 | 180 | 180 |
| • Rated power for slip-ring or squirrel-cage motors at 50 and 60 Hz | | | | | | | | | |
| - At 230 V | kW | 37 | 45 | 55 | 55 | 75 | 90 | 132 | 160 |
| - At 400 V | kW | 55 | 75 | 90 | 110 | 132 | 160 | 200 | 250 |
| - At 500 V | kW | 75 | 90 | 132 | 160 | 160 | 200 | 250 | 315 |
| - At 690 V | kW | 110 | 132 | 160 | On request | On request | On request | 400 | 400 |
| - At 1 000 V | kW | 75 | 90 | 160 | 200 | 132 | 132 | 250 | 250 |
| **Thermal load capacity,** 10 s current | A | 1 100 | 1 300 | 1 480 | 1 800 | 2 400 | | 3 200 | 4 000 |
| **Power loss per main conducting path** at $I_e$/AC-3/AC-3e/400 V | W | 7 | 9 | 13 | 17 | 18 | 22 | 35 | 55 |
| **Utilization category AC-4** (at $I_a$ = 6 x $I_e$) | | | | | | | | | |
| Maximum values: | | | | | | | | | |
| • Rated operational current $I_e$ | | | | | | | | | |
| - Up to 400 V | A | 97 | 132 | 160 | 195 | 230 | 280 | 350 | 430 |
| • Rated power for squirrel-cage motors at 50 Hz and 60 Hz | | | | | | | | | |
| - At 400 V | kW | 55 | 75 | 90 | 110 | 132 | 160 | 200 | 250 |
| The following applies to a contact endurance of about 200 000 operating cycles: | | | | | | | | | |
| • Rated operational currents $I_e$ | | | | | | | | | |
| - Up to 500 V | A | 54 | 68 | 81 | 96 | 117 | 125 | 150 | 175 |
| - Up to 690 V | A | 48 | 57 | 65 | 85 | 105 | 115 | 135 | 150 |
| • Rated power for squirrel-cage motors at 50 Hz and 60 Hz | | | | | | | | | |
| - At 230 V | kW | 16 | 20 | 25 | 30 | 37 | 40 | 48 | 56 |
| - At 400 V | kW | 29 | 38 | 45 | 54 | 66 | 71 | 85 | 98 |
| - At 500 V | kW | 37 | 47 | 57 | 67 | 82 | 87 | 105 | 123 |
| - At 690 V | kW | 48 | 55 | 65 | 82 | 102 | 112 | 133 | 148 |

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## SIRIUS 3RT contactors, 3-pole up to 250 kW



| | | | | | |
|---|---|---|---|---|---|
| | | **Contactors** | | | |
| Type | | **3RT105.** | | **3RT106.** | **3RT107.** |
| Size | | **S6** | | **S10** | **S12** |
| **Conductor cross-sections** | | | | | |
| **Main conductors** (1 or 2 conductors can be connected) | | **Screw terminals** | | | |
| With mounted box terminals | Type | 3RT1955-4G (55 kW) | 3RT1956-4G | 3RT1966-4G | |
| • Terminal screws | | M10 (hexagon socket, A/F 4) | | M12 (hexagon socket, A/F 5) | |
| - Tightening torque | Nm | 10 ... 12 | | 20 ... 22 | |
| | lb.in | 90 ... 110 | | 180 ... 195 | |
| Front clamping point connected | | | | | |
| NSB0_00479 | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 16 ... 70 | 16 ... 120 | 70 ... 240 | |
| • Finely stranded without end sleeve | $mm^2$ | 16 ... 70 | 16 ... 120 | 70 ... 240 | |
| • Stranded | $mm^2$ | 16 ... 70 | 16 ... 120 | 95 ... 300 | |
| • AWG cables, solid or stranded | AWG | 6 ... 2/0 | 6 ... 250 kcmil | 3/0 ... 600 kcmil | |
| • Ribbon cable conductors (number x width x thickness) | mm | Min. 3 x 9 x 0.8, max. 6 x 15.5 x 0.8 | Min. 3 x 9 x 0.8, max. 10 x 15.5 x 0.8 | Min. 6 x 9 x 0.8, max. 20 x 24 x 0.5 | |
| Rear clamping point connected | | | | | |
| NSB0_00480 | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 16 ... 70 | 16 ... 120 | 120 ... 185 | |
| • Finely stranded without end sleeve | $mm^2$ | 16 ... 70 | 16 ... 120 | 120 ... 185 | |
| • Stranded | $mm^2$ | 16 ... 70 | 16 ... 120 | 120 ... 240 | |
| • AWG cables, solid or stranded | AWG | 6 ... 2/0 | 6 ... 250 kcmil | 250 ... 500 kcmil | |
| • Ribbon cable conductors (number x width x thickness) | mm | Min. 3 x 9 x 0.8, max. 6 x 15.5 x 0.8 | Min. 3 x 9 x 0.8, max. 10 x 15.5 x 0.8 | Min. 6 x 9 x 0.8, max. 20 x 24 x 0.5 | |
| Both clamping points connected (minimum cross-section 16 $mm^2$) | | | | | |
| NSB0_00481 | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | Max. 1 x 50, 1 x 70 | Max. 1 x 95, 1 x 120 | Min. 2 x 50, max. 2 x 185 | |
| • Finely stranded without end sleeve | $mm^2$ | Max. 1 x 50, 1 x 70 | Max. 1 x 95, 1 x 120 | Min. 2 x 50, max. 2 x 185 | |
| • Stranded | $mm^2$ | Max. 1 x 50, 1 x 70 | Max. 1 x 95, 1 x 120 | Min. 2 x 70, max. 2 x 240 | |
| • AWG cables, solid or stranded | AWG | Max. 2 x 1/0 | Max. 2 x 3/0 | Min. 2 x 2/0, max. 2 x 500 kcmil | |
| • Ribbon cable conductors (number x width x thickness) | mm | Max. 2 x (6 x 15.5 x 0.8) | Max. 2 x (10 x 15.5 x 0.8) | Max. 2 x (20 x 24 x 0.5) | |
| Busbar connections | | | | | |
| Connecting bar (max. width) | mm | 17 | | 25 | |
| Cable lug connection | | | | | |
| • Finely stranded with cable lug[1)2)] | $mm^2$ | 16 ... 95 | | 50 ... 240 | |
| • Stranded with cable lug[1)2)] | $mm^2$ | 25 ... 120 | | 70 ... 240 | |
| • AWG cables, solid or stranded | AWG | 4 ... 250 kcmil | | 2/0 ... 500 kcmil | |
| • Terminal screws | | M8 x 25 (A/F 13) | | M10 x 30 (A/F 17) | |
| - Tightening torque | Nm | 10 ... 14 | | 14 ... 24 | |
| | lb.in | 90 ... 124 | | 124 ... 210 | |
| **Auxiliary conductors** (1 or 2 conductors can be connected) | | | | | |
| • Solid | $mm^2$ | 2 x (0.5 ... 1.5)[3)]; 2 x (0.75 ... 2.5)[3)]; max. 2 x (0.75 ... 4)[3)] | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[3)]; 2 x (0.75 ... 2.5)[3)] | | | |
| • AWG cables, solid or stranded | AWG | 2 x (18 ... 14) | | | |
| • Terminal screws | | M3 (Pozidriv size 2) | | | |
| - Tightening torque | Nm | 0.8 ... 1.2 | | | |
| | lb.in | 7 ... 10.3 | | | |
| **Auxiliary conductors**[4)] (1 or 2 conductors can be connected) | | **Spring-loaded terminals** | | | |
| • Operating devices | | 3.0 x 0.5; 3.5 x 0.5 | | | |
| • Solid | $mm^2$ | 2 x (0.25 ... 2.5) | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.25 ... 1.5) | | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.25 ... 2.5) | | | |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 14) | | | |

1) 3RT105.: When using cable lugs according to DIN 46235, use the 3RT1956-4EA1 terminal cover for conductor cross-sections from 95 $mm^2$ to maintain the phase clearance; see page 3/112.

2) 3RT106. and 3RT107.: When connecting cable lugs according to DIN 46234 for conductor cross-sections larger than 240 $mm^2$ and according to DIN 46235 for conductor cross-sections larger than 185 $mm^2$, the 3RT1966-4EA1 terminal cover is required to maintain the phase clearance, see page 3/112.

3) If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

4) Max. outer diameter of the conductor insulation: 3.6 mm.
On spring-loaded terminals with conductor cross-sections ≤ 1 $mm^2$, an insulation stop is recommended, see page 3/115.

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***Data for North America***

| Type | | | Contactors 3RT2015 | 3RT2016 | 3RT2017 | 3RT2018 |
|---|---|---|---|---|---|---|
| Size | | | S00 | | | |
| **cULus rated data** | | | | | | |
| **Rated operational voltage** | | V AC | 600 | | | |
| **Uninterrupted current,** at 40 °C, open and enclosed | | A | 20 | | | |
| **Maximum horsepower ratings** (from cULus and cULus approved values) | | | | | | |
| • Rated power for three-phase motors at 60 Hz | at 200 V | hp | 1.5 | 2 | 3 | |
| | 230 V | hp | 2 | 3 | | 5 |
| | 460 V | hp | 3 | 5 | 7.5 | 10 |
| | 575 V | hp | 5 | 7.5 | 10 | |
| **Short-circuit protection** (contactor) | at 600 V | kA | 5 | | | |
| • Class J fuse (values for RK5 fuses available on request) | | A | 60 | | | |
| • Circuit breakers in accordance with UL 489 ("Inverse Time Breakers") | | A | 50 | | | |
| • Combination Motor Controllers (Type E) according to UL 508 and UL 60947-4-1 | | | 3RV2.1 or 3RV2.2 | | | |

| Type | | | Contactors 3RT2023 | 3RT2024 | 3RT2025 | 3RT2026 | 3RT2326-.....-4AA0 | 3RT2027 | 3RT2028 |
|---|---|---|---|---|---|---|---|---|---|
| Size | | | S0 | | | | | | |
| **cULus rated data** | | | | | | | | | |
| **Rated operational voltage** | | V AC | 600 | | | | | | |
| **Uninterrupted current,** at 40 °C, open and enclosed | | A | 30 | | | | | 42 | |
| **Maximum horsepower ratings** (from cULus and cULus approved values) | | | | | | | | | |
| • Rated power for three-phase motors at 60 Hz | at 200 V | hp | 2 | 3 | | 5 | 3 | 10 | |
| | 230 V | hp | 3 | | 5 | 7.5 | 5 | 10 | |
| | 460 V | hp | 5 | 7.5 | 10 | 15 | 10 | 20 | 25 |
| | 575 V | hp | 7.5 | 10 | 15 | 20 | 15 | 25 | |
| **Short-circuit protection** (contactor) | at 600 V | kA | 5 | | | | | | |
| • Class J fuse (values for RK5 fuses available on request) | | A | 125 | | | | | 150 | |
| • Circuit breakers in accordance with UL 489 ("Inverse Time Breakers") | | A | 70 | | | | | 100 | |
| • Combination Motor Controllers (Type E) according to UL 508 and UL 60947-4-1 | at 480 V | Type | 3RV202 | | | | | | |
| | at 600 V | Type | 3RV202 | | | | | | |

| Type | | | Contactors 3RT2035 | 3RT2036, 3RT2336-.....-4AA0 | 3RT2037 | 3RT2038 | 3RT2045 | 3RT2046 | 3RT2047 |
|---|---|---|---|---|---|---|---|---|---|
| Size | | | S2 | | | | S3 | | |
| **cULus rated data** | | | | | | | | | |
| **Rated operational voltage** | | V AC | 600 | | | | | | |
| **Uninterrupted current,** at 40 °C, open and enclosed | | A | 55 | 60 | 80 | 90 | 62 | 77 | 99 |
| **Maximum horsepower ratings** (from cULus and cULus approved values) | | | | | | | | | |
| • Rated power for three-phase motors at 60 Hz | at 200/208 V | hp | 10 | 15 | 20 | | 25 | 30 | |
| | 230/240 V | hp | 15 | | 20 | 25 | 30 | | 40 |
| | 460/480 V | hp | 30 | 40 | 50 | | 60 | 75 | |
| | 575/600 V | hp | 40 | 50 | | 60 | 60 | 75 | 100 |
| **Short-circuit protection** (contactor) | at 600 V | kA | 5 | 10 | | | 10 | | |
| • RK5 fuse | | A | 150 | 200 | 250 | | 300 | 350 | |
| • Combination Motor Controllers (Type E) according to UL 508 and UL 60947-4-1 | | Type | 3RV203 | | | | 3RV204 | | |

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## SIRIUS 3RT contactors, 3-pole up to 250 kW



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Contactors** | | | | | | |
| Type | | | **3RT1054** | **3RT1055** | **3RT1056** | **3RT1064** | **3RT1065** | **3RT1066** | **3RT1075** | **3RT1076** |
| Size | | | **S6** | | | **S10** | | | **S12** | |
| **CSA and UL rated data** | | | | | | | | | | |
| **Rated operational voltage** | | V AC | 600 | | | | | | | |
| **Uninterrupted current,** at 40 °C, open and enclosed | | A | 140 | 195 | | 250 | 330 | | 400 | 540 |
| **Maximum horsepower ratings** (from CSA and UL approved values) | | | | | | | | | | |
| • Rated power for three-phase motors at 60 Hz | at 200 V | hp | 40 | 50 | 60 | | 75 | 100 | 125 | 150 |
| | 230 V | hp | 50 | 60 | 75 | | 100 | 125 | 150 | 200 |
| | 460 V | hp | 100 | 125 | 150 | | 200 | 250 | 300 | 400 |
| | 575 V | hp | 125 | 150 | 200 | | 250 | 300 | 400 | 500 |
| **Short-circuit protection** | | | For more information, see Certificate of Compliance for the individual devices.<br>For the dimensioning of load feeders, see Configuration Manual. | | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | **Contactors** | | | | |
| Type | | **3RT201** | **3RT202 to 3RT204** | | **3RT105 to 3RT107** | |
| Size | | **S00** | **S0 to S3** | | **S6 to S12** | |
| | | Integrated or mountable auxiliary switch | Integrated | Mountable auxiliary switch | Mountable auxiliary switch | |
| **CSA and UL rated data of the auxiliary contacts** | | | | | | |
| **Rated voltage** | V AC | 600 | | | | |
| **Switching capacity** | | A 600, Q 600 | A 600, P 600 | A 600, Q 600 | A 600, Q 600 | |
| • Uninterrupted current at 240 V AC | A | 10 | | | | |

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## Selection and ordering data

### *AC operation*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT201.-1A...

3RT201.-2A...

3RT201.-1AP04-3MA0

3RT201.-2AP04-3MA0

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | 50/60 Hz AC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | | | | | |
| A | **kW** | A | | | | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | |
| 7 | **3** | 18 | **10** | 1 | -- | 24<br>110<br>230 | **3RT2015-1AB01**<br>**3RT2015-1AF01**<br>**3RT2015-1AP01** | | **3RT2015-2AB01**<br>**3RT2015-2AF01**<br>**3RT2015-2AP01** | |
| | | | **01** | -- | 1 | 24<br>110<br>230 | **3RT2015-1AB02**<br>**3RT2015-1AF02**<br>**3RT2015-1AP02** | | **3RT2015-2AB02**<br>**3RT2015-2AF02**<br>**3RT2015-2AP02** | |
| 9 | **4** | 22 | **10** | 1 | -- | 24<br>110<br>230 | **3RT2016-1AB01**<br>**3RT2016-1AF01**<br>**3RT2016-1AP01** | | **3RT2016-2AB01**<br>**3RT2016-2AF01**<br>**3RT2016-2AP01** | |
| | | | **01** | -- | 1 | 24<br>110<br>230 | **3RT2016-1AB02**<br>**3RT2016-1AF02**<br>**3RT2016-1AP02** | | **3RT2016-2AB02**<br>**3RT2016-2AF02**<br>**3RT2016-2AP02** | |
| 12 | **5.5** | 22 | **10** | 1 | -- | 24<br>110<br>230 | **3RT2017-1AB01**<br>**3RT2017-1AF01**<br>**3RT2017-1AP01** | | **3RT2017-2AB01**<br>**3RT2017-2AF01**<br>**3RT2017-2AP01** | |
| | | | **01** | -- | 1 | 24<br>110<br>230 | **3RT2017-1AB02**<br>**3RT2017-1AF02**<br>**3RT2017-1AP02** | | **3RT2017-2AB02**<br>**3RT2017-2AF02**<br>**3RT2017-2AP02** | |
| 16 | **7.5** | 22 | **10** | 1 | -- | 24<br>110<br>230 | **3RT2018-1AB01**<br>**3RT2018-1AF01**<br>**3RT2018-1AP01** | | **3RT2018-2AB01**<br>**3RT2018-2AF01**<br>**3RT2018-2AP01** | |
| | | | **01** | -- | 1 | 24<br>110<br>230 | **3RT2018-1AB02**<br>**3RT2018-1AF02**<br>**3RT2018-1AP02** | | **3RT2018-2AB02**<br>**3RT2018-2AF02**<br>**3RT2018-2AP02** | |
| **With permanently mounted auxiliary switch** | | | | | | | | | | |
| 7 | **3** | 18 | **22** | 2 | 2 | 230 | **3RT2015-1AP04-3MA0** | | **3RT2015-2AP04-3MA0** | |
| 9 | **4** | 22 | **22** | 2 | 2 | 230 | **3RT2016-1AP04-3MA0** | | **3RT2016-2AP04-3MA0** | |
| 12 | **5.5** | 22 | **22** | 2 | 2 | 230 | **3RT2017-1AP04-3MA0** | | **3RT2017-2AP04-3MA0** | |
| 16 | **7.5** | 22 | **22** | 2 | 2 | 230 | **3RT2018-1AP04-3MA0** | | **3RT2018-2AP04-3MA0** | |
| **With permanently mounted auxiliary switch and varistor plugged into the front** | | | | | | | | | | |
| 7 | **3** | 18 | **22** | 2 | 2 | 230 | **3RT2015-1CP04-3MA0** | | **3RT2015-2CP04-3MA0** | |
| 9 | **4** | 22 | **22** | 2 | 2 | 230 | **3RT2016-1CP04-3MA0** | | **3RT2016-2CP04-3MA0** | |
| 12 | **5.5** | 22 | **22** | 2 | 2 | 230 | **3RT2017-1CP04-3MA0** | | **3RT2017-2CP04-3MA0** | |
| 16 | **7.5** | 22 | **22** | 2 | 2 | 230 | **3RT2018-1CP04-3MA0** | | **3RT2018-2CP04-3MA0** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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### SIRIUS 3RT contactors, 3-pole up to 250 kW *IE3/IE4* ready AC-3e

***AC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT202.-1A.00

3RT202.-2A.00

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | 50 Hz AC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | | | | | |
| A | **kW** | A | | | | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S0*** | | | | | | | | | | |
| 9 | **4** | 40 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2023-1AB00**<br>**3RT2023-1AF00**<br>**3RT2023-1AP00** | | **3RT2023-2AB00**<br>**3RT2023-2AF00**<br>**3RT2023-2AP00** | |
| 12 | **5.5** | 40 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2024-1AB00**<br>**3RT2024-1AF00**<br>**3RT2024-1AP00** | | **3RT2024-2AB00**<br>**3RT2024-2AF00**<br>**3RT2024-2AP00** | |
| 17 | **7.5** | 40 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2025-1AB00**<br>**3RT2025-1AF00**<br>**3RT2025-1AP00** | | **3RT2025-2AB00**<br>**3RT2025-2AF00**<br>**3RT2025-2AP00** | |
| 25 | **11** | 40 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2026-1AB00**<br>**3RT2026-1AF00**<br>**3RT2026-1AP00** | | **3RT2026-2AB00**<br>**3RT2026-2AF00**<br>**3RT2026-2AP00** | |
| 32 | **15** | 50 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2027-1AB00**<br>**3RT2027-1AF00**<br>**3RT2027-1AP00** | | **3RT2027-2AB00**<br>**3RT2027-2AF00**<br>**3RT2027-2AP00** | |
| 38 | **18.5** | 50 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2028-1AB00**<br>**3RT2028-1AF00**<br>**3RT2028-1AP00** | | **3RT2028-2AB00**<br>**3RT2028-2AF00**<br>**3RT2028-2AP00** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

© Siemens 2023





***AC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT202.-1A.04

3RT202.-2A.04

3RT202.-1CL24-3MA0

3RT202.-2CL24-3MA0

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | 50 Hz AC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | V | | | | |
| A | **kW** | A | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S0*** | | | | | | | | | | |
| **With removable auxiliary switch** | | | | | | | | | | |
| 9 | **4** | 40 | **22** | 2 | 2 | 24<br>230 | **3RT2023-1AB04**<br>**3RT2023-1AP04** | | **3RT2023-2AB04**<br>**3RT2023-2AP04** | |
| 12 | **5.5** | 40 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2024-1AB04**<br>**3RT2024-1AF04**<br>**3RT2024-1AP04** | | **3RT2024-2AB04**<br>**3RT2024-2AF04**<br>**3RT2024-2AP04** | |
| 17 | **7.5** | 40 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2025-1AB04**<br>**3RT2025-1AF04**<br>**3RT2025-1AP04** | | **3RT2025-2AB04**<br>**3RT2025-2AF04**<br>**3RT2025-2AP04** | |
| 25 | **11** | 40 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2026-1AB04**<br>**3RT2026-1AF04**<br>**3RT2026-1AP04** | | **3RT2026-2AB04**<br>**3RT2026-2AF04**<br>**3RT2026-2AP04** | |
| 32 | **15** | 50 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2027-1AB04**<br>**3RT2027-1AF04**<br>**3RT2027-1AP04** | | **3RT2027-2AB04**<br>**3RT2027-2AF04**<br>**3RT2027-2AP04** | |
| 38 | **18.5** | 50 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2028-1AB04**<br>**3RT2028-1AF04**<br>**3RT2028-1AP04** | | **3RT2028-2AB04**<br>**3RT2028-2AF04**<br>**3RT2028-2AP04** | |
| **With permanently mounted auxiliary switch and varistor plugged in** | | | | | | | | | | |
| 9 | **4** | 40 | **22** | 2 | 2 | 230 | **3RT2023-1CL24-3MA0** | | **3RT2023-2CL24-3MA0** | |
| 12 | **5.5** | 40 | **22** | 2 | 2 | 230 | **3RT2024-1CL24-3MA0** | | **3RT2024-2CL24-3MA0** | |
| 17 | **7.5** | 40 | **22** | 2 | 2 | 230 | **3RT2025-1CL24-3MA0** | | **3RT2025-2CL24-3MA0** | |
| 25 | **11** | 40 | **22** | 2 | 2 | 230 | **3RT2026-1CL24-3MA0** | | **3RT2026-2CL24-3MA0** | |
| 32 | **15** | 50 | **22** | 2 | 2 | 230 | **3RT2027-1CL24-3MA0** | | **3RT2027-2CL24-3MA0** | |
| 38 | **18.5** | 50 | **22** | 2 | 2 | 230 | **3RT2028-1CL24-3MA0** | | **3RT2028-2CL24-3MA0** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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### SIRIUS 3RT contactors, 3-pole up to 250 kW IE3/IE4 ready AC-3e

***AC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT203.-1A.00

3RT203.-3A.00

3RT203.-1A.04

3RT203.-3CL24-3MA0

3RT203.-1CL24-3MA0

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | 50 Hz AC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | | | | | |
| A | **kW** | A | | | | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S2*** | | | | | | | | | | |
| 41 | **18.5** | 60 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2035-1AB00**<br>**3RT2035-1AF00**<br>**3RT2035-1AP00** | | **3RT2035-3AB00**<br>**3RT2035-3AF00**<br>**3RT2035-3AP00** | |
| 51 | **22** | 70 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2036-1AB00**<br>**3RT2036-1AF00**<br>**3RT2036-1AP00** | | **3RT2036-3AB00**<br>**3RT2036-3AF00**<br>**3RT2036-3AP00** | |
| 65 | **30** | 80 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2037-1AB00**<br>**3RT2037-1AF00**<br>**3RT2037-1AP00** | | **3RT2037-3AB00**<br>**3RT2037-3AF00**<br>**3RT2037-3AP00** | |
| 80 | **37** | 90 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2038-1AB00**<br>**3RT2038-1AF00**<br>**3RT2038-1AP00** | | **3RT2038-3AB00**<br>**3RT2038-3AF00**<br>**3RT2038-3AP00** | |
| **With removable auxiliary switch** | | | | | | | | | | |
| 41 | **18.5** | 60 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2035-1AB04**<br>**3RT2035-1AF04**<br>**3RT2035-1AP04** | | **--**<br>**--**<br>**--** | |
| 51 | **22** | 70 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2036-1AB04**<br>**3RT2036-1AF04**<br>**3RT2036-1AP04** | | **--**<br>**--**<br>**--** | |
| 65 | **30** | 80 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2037-1AB04**<br>**3RT2037-1AF04**<br>**3RT2037-1AP04** | | **--**<br>**--**<br>**--** | |
| 80 | **37** | 90 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2038-1AB04**<br>**3RT2038-1AF04**<br>**3RT2038-1AP04** | | **--**<br>**--**<br>**--** | |
| **With permanently mounted auxiliary switch and integrated coil circuit (varistor plugged in at the factory)** | | | | | | | | | | |
| 41 | **18.5** | 60 | **22** | 2 | 2 | 230 | **3RT2035-1CL24-3MA0** | | **3RT2035-3CL24-3MA0** | |
| 51 | **22** | 70 | **22** | 2 | 2 | 230 | **3RT2036-1CL24-3MA0** | | **3RT2036-3CL24-3MA0** | |
| 65 | **30** | 80 | **22** | 2 | 2 | 230 | **3RT2037-1CL24-3MA0** | | **3RT2037-3CL24-3MA0** | |
| 80 | **37** | 90 | **22** | 2 | 2 | 230 | **3RT2038-1CL24-3MA0** | | **3RT2038-3CL24-3MA0** | |


Other voltages according to page 3/67 on request.
Accessories and spare parts, see pages 3/69 to 3/119.




*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***AC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT204.-1A.00

3RT204.-1A.04

3RT204.-1CL24-3MA0

3RT204.-3A.00

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | 50 Hz AC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | | | | | | | |
| A | **kW** | A | | NO | NC | V | | | | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | | |
| ***Size S3*** | | | | | | | | | | |
| 80 | **37** | 125 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2045-1AB00**<br>**3RT2045-1AF00**<br>**3RT2045-1AP00** | | **3RT2045-3AB00**<br>**3RT2045-3AF00**<br>**3RT2045-3AP00** | |
| 95 | **45** | 130 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2046-1AB00**<br>**3RT2046-1AF00**<br>**3RT2046-1AP00** | | **3RT2046-3AB00**<br>**3RT2046-3AF00**<br>**3RT2046-3AP00** | |
| 110 | **55** | 130 | **11** | 1 | 1 | 24<br>110<br>230 | **3RT2047-1AB00**<br>**3RT2047-1AF00**<br>**3RT2047-1AP00** | | **3RT2047-3AB00**<br>**3RT2047-3AF00**<br>**3RT2047-3AP00** | |
| **With removable auxiliary switch** | | | | | | | | | | |
| 80 | **37** | 125 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2045-1AB04**<br>**3RT2045-1AF04**<br>**3RT2045-1AP04** | | **--**<br>**--**<br>**--** | |
| 95 | **45** | 130 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2046-1AB04**<br>**3RT2046-1AF04**<br>**3RT2046-1AP04** | | **--**<br>**--**<br>**--** | |
| 110 | **55** | 130 | **22** | 2 | 2 | 24<br>110<br>230 | **3RT2047-1AB04**<br>**3RT2047-1AF04**<br>**3RT2047-1AP04** | | **--**<br>**--**<br>**--** | |
| **With permanently mounted auxiliary switch and integrated coil circuit (varistor plugged in at the factory)** | | | | | | | | | | |
| 80 | **37** | 125 | **22** | 2 | 2 | 230 | **3RT2045-1CL24-3MA0** | | **--** | |
| 95 | **45** | 130 | **22** | 2 | 2 | 230 | **3RT2046-1CL24-3MA0** | | **--** | |
| 110 | **55** | 130 | **22** | 2 | 2 | 230 | **3RT2047-1CL24-3MA0** | | **--** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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### SIRIUS 3RT contactors, 3-pole up to 250 kW IE3/IE4 ready AC-3e

***DC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT201.-1B...

3RT201.-2B...

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to 400 V | Ratings of three-phase motors at 50 Hz and **400 V** | Operational current $I_e$ up to 690 V | Ident. No. | Version NO | Version NC | DC | Article No. | Price per PU | Article No. | Price per PU |
| A | **kW** | A | | | | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | |
| 7 | **3** | 18 | **10** | 1 | -- | 24<br>220 | **3RT2015-1BB41**<br>**3RT2015-1BM41** | | **3RT2015-2BB41**<br>**3RT2015-2BM41** | |
| | | | **01** | -- | 1 | 24<br>220 | **3RT2015-1BB42**<br>**3RT2015-1BM42** | | **3RT2015-2BB42**<br>**3RT2015-2BM42** | |
| 9 | **4** | 22 | **10** | 1 | -- | 24<br>220 | **3RT2016-1BB41**<br>**3RT2016-1BM41** | | **3RT2016-2BB41**<br>**3RT2016-2BM41** | |
| | | | **01** | -- | 1 | 24<br>220 | **3RT2016-1BB42**<br>**3RT2016-1BM42** | | **3RT2016-2BB42**<br>**3RT2016-2BM42** | |
| 12 | **5.5** | 22 | **10** | 1 | -- | 24<br>220 | **3RT2017-1BB41**<br>**3RT2017-1BM41** | | **3RT2017-2BB41**<br>**3RT2017-2BM41** | |
| | | | **01** | -- | 1 | 24<br>220 | **3RT2017-1BB42**<br>**3RT2017-1BM42** | | **3RT2017-2BB42**<br>**3RT2017-2BM42** | |
| 16 | **7.5** | 22 | **10** | 1 | -- | 24<br>220 | **3RT2018-1BB41**<br>**3RT2018-1BM41** | | **3RT2018-2BB41**<br>**3RT2018-2BM41** | |
| | | | **01** | -- | 1 | 24<br>220 | **3RT2018-1BB42**<br>**3RT2018-1BM42** | | **3RT2018-2BB42**<br>**3RT2018-2BM42** | |
| **With integrated coil circuit (varistor integrated at the factory)** | | | | | | | | | | |
| 7 | **3** | 18 | **10**<br>**01** | 1<br>-- | --<br>1 | 24<br>24 | **3RT2015-1UB41**<br>**3RT2015-1UB42** | | **3RT2015-2UB41**<br>**3RT2015-2UB42** | |
| 9 | **4** | 22 | **10**<br>**01** | 1<br>-- | --<br>1 | 24<br>24 | **3RT2016-1UB41**<br>**3RT2016-1UB42** | | **3RT2016-2UB41**<br>**3RT2016-2UB42** | |
| 12 | **5.5** | 22 | **10**<br>**01** | 1<br>-- | --<br>1 | 24<br>24 | **3RT2017-1UB41**<br>**3RT2017-1UB42** | | **3RT2017-2UB41**<br>**3RT2017-2UB42** | |
| 16 | **7.5** | 22 | **10**<br>**01** | 1<br>-- | --<br>1 | 24<br>24 | **3RT2018-1UB41**<br>**3RT2018-1UB42** | | **3RT2018-2UB41**<br>**3RT2018-2UB42** | |
| **With integrated coil circuit (diode integrated at factory)** | | | | | | | | | | |
| 7 | **3** | 18 | **10**<br>**01** | 1<br>-- | --<br>1 | 24<br>24 | **3RT2015-1FB41**<br>**3RT2015-1FB42** | | **3RT2015-2FB41**<br>**3RT2015-2FB42** | |
| 9 | **4** | 22 | **10**<br>**01** | 1<br>-- | --<br>1 | 24<br>24 | **3RT2016-1FB41**<br>**3RT2016-1FB42** | | **3RT2016-2FB41**<br>**3RT2016-2FB42** | |
| 12 | **5.5** | 22 | **10**<br>**01** | 1<br>-- | --<br>1 | 24<br>24 | **3RT2017-1FB41**<br>**3RT2017-1FB42** | | **3RT2017-2FB41**<br>**3RT2017-2FB42** | |
| 16 | **7.5** | 22 | **10**<br>**01** | 1<br>-- | --<br>1 | 24<br>24 | **3RT2018-1FB41**<br>**3RT2018-1FB42** | | **3RT2018-2FB41**<br>**3RT2018-2FB42** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## *DC operation*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT201.-1BB44-3MA0

3RT201.-2BB44-3MA0

3RT201.-1BB4.-0CC0

3RT201.-2BB4.-0CC0

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | V | | | | |
| A | **kW** | A | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | |
| **With permanently mounted auxiliary switch** | | | | | | | | | | |
| 7 | **3** | 18 | **22** | 2 | 2 | 24 | **3RT2015-1BB44-3MA0** | | **3RT2015-2BB44-3MA0** | |
| 9 | **4** | 22 | **22** | 2 | 2 | 24 | **3RT2016-1BB44-3MA0** | | **3RT2016-2BB44-3MA0** | |
| 12 | **5.5** | 22 | **22** | 2 | 2 | 24 | **3RT2017-1BB44-3MA0** | | **3RT2017-2BB44-3MA0** | |
| 16 | **7.5** | 22 | **22** | 2 | 2 | 24 | **3RT2018-1BB44-3MA0** | | **3RT2018-2BB44-3MA0** | |
| **With permanently mounted auxiliary switch and integrated coil circuit (diode integrated at the factory)** | | | | | | | | | | |
| 7 | **3** | 18 | **22** | 2 | 2 | 24 | **3RT2015-1FB44-3MA0** | | **3RT2015-2FB44-3MA0** | |
| 9 | **4** | 22 | **22** | 2 | 2 | 24 | **3RT2016-1FB44-3MA0** | | **3RT2016-2FB44-3MA0** | |
| 12 | **5.5** | 22 | **22** | 2 | 2 | 24 | **3RT2017-1FB44-3MA0** | | **3RT2017-2FB44-3MA0** | |
| 16 | **7.5** | 22 | **22** | 2 | 2 | 24 | **3RT2018-1FB44-3MA0** | | **3RT2018-2FB44-3MA0** | |
| **With voltage tap-off (only available with 24 V DC coils)** | | | | | | | | | | |
| 7 | **3** | 18 | **10** | 1 | -- | 24 | **3RT2015-1BB41-0CC0** | | **3RT2015-2BB41-0CC0** | |
| | | | **01** | -- | 1 | 24 | **3RT2015-1BB42-0CC0** | | **3RT2015-2BB42-0CC0** | |
| 9 | **4** | 22 | **10** | 1 | -- | 24 | **3RT2016-1BB41-0CC0** | | **3RT2016-2BB41-0CC0** | |
| | | | **01** | -- | 1 | 24 | **3RT2016-1BB42-0CC0** | | **3RT2016-2BB42-0CC0** | |
| 12 | **5.5** | 22 | **10** | 1 | -- | 24 | **3RT2017-1BB41-0CC0** | | **3RT2017-2BB41-0CC0** | |
| | | | **01** | -- | 1 | 24 | **3RT2017-1BB42-0CC0** | | **3RT2017-2BB42-0CC0** | |
| 16 | **7.5** | 22 | **10** | 1 | -- | 24 | **3RT2018-1BB41-0CC0** | | **3RT2018-2BB41-0CC0** | |
| | | | **01** | -- | 1 | 24 | **3RT2018-1BB42-0CC0** | | **3RT2018-2BB42-0CC0** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT contactors, 3-pole up to 250 kW IE3/IE4 ready AC-3e

### *DC operation for direct control by PLC*

- Coupling contactors with adapted power consumption
- Suitable for solid-state PLC/F-PLC outputs
- Cannot be expanded with auxiliary switches

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT201.-1.B4.

3RT201.-2.B4.

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to 400 V | Ratings of three-phase motors at 50 Hz and **400 V** | Operational current $I_e$ up to 690 V | Ident. No. | Version NO | Version NC | DC | Article No. | Price per PU | Article No. | Price per PU |
| A | **kW** | A | | NO | NC | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | |
| (cannot be expanded with auxiliary switches) | | | | | | | | | | |
| Operating range **0.7 ... 1.25 x $U_s$**, power consumption of the solenoid coils **2.8 W** at 24 V | | | | | | | | | | |
| 7 | **3** | 18 | **10** | 1 | -- | 24 | **3RT2015-1HB41** | | **3RT2015-2HB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2015-1HB42** | | **3RT2015-2HB42** | |
| 9 | **4** | 22 | **10** | 1 | -- | 24 | **3RT2016-1HB41** | | **3RT2016-2HB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2016-1HB42** | | **3RT2016-2HB42** | |
| 12 | **5.5** | 22 | **10** | 1 | -- | 24 | **3RT2017-1HB41** | | **3RT2017-2HB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2017-1HB42** | | **3RT2017-2HB42** | |
| Operating range **0.85 ... 1.85 x $U_s$**, power consumption of the solenoid coils **1.6 W** at 24 V | | | | | | | | | | |
| 7 | **3** | 18 | **10** | 1 | -- | 24 | **3RT2015-1MB41-0KT0** | | **3RT2015-2MB41-0KT0** | |
| | | | **01** | -- | 1 | 24 | **3RT2015-1MB42-0KT0** | | **3RT2015-2MB42-0KT0** | |
| 9 | **4** | 22 | **10** | 1 | -- | 24 | **3RT2016-1MB41-0KT0** | | **3RT2016-2MB41-0KT0** | |
| | | | **01** | -- | 1 | 24 | **3RT2016-1MB42-0KT0** | | **3RT2016-2MB42-0KT0** | |
| 12 | **5.5** | 22 | **10** | 1 | -- | 24 | **3RT2017-1MB41-0KT0** | | **3RT2017-2MB41-0KT0** | |
| | | | **01** | -- | 1 | 24 | **3RT2017-1MB42-0KT0** | | **3RT2017-2MB42-0KT0** | |
| **With integrated coil circuit (diode integrated at factory)** | | | | | | | | | | |
| (cannot be expanded with auxiliary switches) | | | | | | | | | | |
| Operating range **0.7 ... 1.25 x $U_s$**, power consumption of the solenoid coils **2.8 W** at 24 V | | | | | | | | | | |
| 7 | **3** | 18 | **10** | 1 | -- | 24 | **3RT2015-1JB41** | | **3RT2015-2JB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2015-1JB42** | | **3RT2015-2JB42** | |
| 9 | **4** | 22 | **10** | 1 | -- | 24 | **3RT2016-1JB41** | | **3RT2016-2JB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2016-1JB42** | | **3RT2016-2JB42** | |
| 12 | **5.5** | 22 | **10** | 1 | -- | 24 | **3RT2017-1JB41** | | **3RT2017-2JB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2017-1JB42** | | **3RT2017-2JB42** | |
| Operating range **0.85 ... 1.85 x $U_s$**, power consumption of the solenoid coils **1.6 W** at 24 V | | | | | | | | | | |
| 7 | **3** | 18 | **10** | 1 | -- | 24 | **3RT2015-1VB41** | | **3RT2015-2VB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2015-1VB42** | | **3RT2015-2VB42** | |
| 9 | **4** | 22 | **10** | 1 | -- | 24 | **3RT2016-1VB41** | | **3RT2016-2VB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2016-1VB42** | | **3RT2016-2VB42** | |
| 12 | **5.5** | 22 | **10** | 1 | -- | 24 | **3RT2017-1VB41** | | **3RT2017-2VB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2017-1VB42** | | **3RT2017-2VB42** | |


Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.




* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***DC operation for direct control by PLC***

- Coupling contactors with adapted power consumption
- Suitable for solid-state PLC/F-PLC outputs
- Cannot be expanded with auxiliary switches

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT201.-1.B4.

3RT201.-2.B4.

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | | | | | | | |
| A | **kW** | A | | NO | NC | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | |
| **With integrated coil circuit (suppressor diode integrated at factory)** | | | | | | | | | | |
| (cannot be expanded with auxiliary switches) | | | | | | | | | | |
| Operating range **0.7 ... 1.25 x $U_s$**, power consumption of the solenoid coils **2.8 W** at 24 V | | | | | | | | | | |
| 7 | **3** | 18 | **10** | 1 | -- | 24 | **3RT2015-1KB41** | | **3RT2015-2KB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2015-1KB42** | | **3RT2015-2KB42** | |
| 9 | **4** | 22 | **10** | 1 | -- | 24 | **3RT2016-1KB41** | | **3RT2016-2KB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2016-1KB42** | | **3RT2016-2KB42** | |
| 12 | **5.5** | 22 | **10** | 1 | -- | 24 | **3RT2017-1KB41** | | **3RT2017-2KB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2017-1KB42** | | **3RT2017-2KB42** | |
| Operating range **0.85 ... 1.85 x $U_s$**, power consumption of the solenoid coils **1.6 W** at 24 V | | | | | | | | | | |
| 7 | **3** | 18 | **10** | 1 | -- | 24 | **3RT2015-1SB41** | | **3RT2015-2SB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2015-1SB42** | | **3RT2015-2SB42** | |
| 9 | **4** | 22 | **10** | 1 | -- | 24 | **3RT2016-1SB41** | | **3RT2016-2SB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2016-1SB42** | | **3RT2016-2SB42** | |
| 12 | **5.5** | 22 | **10** | 1 | -- | 24 | **3RT2017-1SB41** | | **3RT2017-2SB41** | |
| | | | **01** | -- | 1 | 24 | **3RT2017-1SB42** | | **3RT2017-2SB42** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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### SIRIUS 3RT contactors, 3-pole up to 250 kW IE3/IE4 ready AC-3e

***DC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT202.-1B.40

3RT202.-2B.40

3RT202.-1B.44

3RT202.-2B.44

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | V | | | | |
| A | **kW** | A | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S0*** | | | | | | | | | | |
| 9 | **4** | 40 | **11** | 1 | 1 | 24 | **3RT2023-1BB40** | | **3RT2023-2BB40** | |
| 12 | **5.5** | 40 | **11** | 1 | 1 | 24<br>220 | **3RT2024-1BB40**<br>**3RT2024-1BM40** | | **3RT2024-2BB40**<br>**3RT2024-2BM40** | |
| 17 | **7.5** | 40 | **11** | 1 | 1 | 24<br>220 | **3RT2025-1BB40**<br>**3RT2025-1BM40** | | **3RT2025-2BB40**<br>**3RT2025-2BM40** | |
| 25 | **11** | 40 | **11** | 1 | 1 | 24<br>220 | **3RT2026-1BB40**<br>**3RT2026-1BM40** | | **3RT2026-2BB40**<br>**3RT2026-2BM40** | |
| 32 | **15** | 50 | **11** | 1 | 1 | 24<br>220 | **3RT2027-1BB40**<br>**3RT2027-1BM40** | | **3RT2027-2BB40**<br>**3RT2027-2BM40** | |
| 38 | **18.5** | 50 | **11** | 1 | 1 | 24<br>220 | **3RT2028-1BB40**<br>**3RT2028-1BM40** | | **3RT2028-2BB40**<br>**3RT2028-2BM40** | |
| **With coil circuit plugged into front (varistor plugged in at the factory)** | | | | | | | | | | |
| 9 | **4** | 40 | **11** | 1 | 1 | 24 | **3RT2023-1DB40** | | **3RT2023-2DB40** | |
| 12 | **5.5** | 40 | **11** | 1 | 1 | 24 | **3RT2024-1DB40** | | **3RT2024-2DB40** | |
| 17 | **7.5** | 40 | **11** | 1 | 1 | 24 | **3RT2025-1DB40** | | **3RT2025-2DB40** | |
| 25 | **11** | 40 | **11** | 1 | 1 | 24 | **3RT2026-1DB40** | | **3RT2026-2DB40** | |
| 32 | **15** | 50 | **11** | 1 | 1 | 24 | **3RT2027-1DB40** | | **3RT2027-2DB40** | |
| 38 | **18.5** | 50 | **11** | 1 | 1 | 24 | **3RT2028-1DB40** | | **3RT2028-2DB40** | |
| **With coil circuit plugged into front (diode assembly plugged in at the factory)** | | | | | | | | | | |
| 9 | **4** | 40 | **11** | 1 | 1 | 24 | **3RT2023-1FB40** | | **3RT2023-2FB40** | |
| 12 | **5.5** | 40 | **11** | 1 | 1 | 24 | **3RT2024-1FB40** | | **3RT2024-2FB40** | |
| 17 | **7.5** | 40 | **11** | 1 | 1 | 24 | **3RT2025-1FB40** | | **3RT2025-2FB40** | |
| 25 | **11** | 40 | **11** | 1 | 1 | 24 | **3RT2026-1FB40** | | **3RT2026-2FB40** | |
| 32 | **15** | 50 | **11** | 1 | 1 | 24 | **3RT2027-1FB40** | | **3RT2027-2FB40** | |
| 38 | **18.5** | 50 | **11** | 1 | 1 | 24 | **3RT2028-1FB40** | | **3RT2028-2FB40** | |
| **With removable auxiliary switch** | | | | | | | | | | |
| 9 | **4** | 40 | **22** | 2 | 2 | 24 | **3RT2023-1BB44** | | **3RT2023-2BB44** | |
| 12 | **5.5** | 40 | **22** | 2 | 2 | 24 | **3RT2024-1BB44** | | **3RT2024-2BB44** | |
| 17 | **7.5** | 40 | **22** | 2 | 2 | 24 | **3RT2025-1BB44** | | **3RT2025-2BB44** | |
| 25 | **11** | 40 | **22** | 2 | 2 | 24 | **3RT2026-1BB44** | | **3RT2026-2BB44** | |
| 32 | **15** | 50 | **22** | 2 | 2 | 24 | **3RT2027-1BB44** | | **3RT2027-2BB44** | |
| 38 | **18.5** | 50 | **22** | 2 | 2 | 24 | **3RT2028-1BB44** | | **3RT2028-2BB44** | |


Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.




* You can order this quantity or a multiple thereof.
Illustrations are approximate

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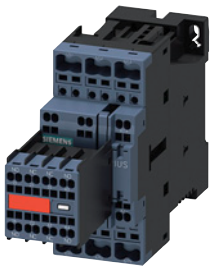
***DC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT202.-1.B44-3MA0


3RT202.-2.B44-3MA0

3RT202.-1BB40-0CC0

3RT202.-2BB40-0CC0

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | | | | | | | |
| A | **kW** | A | | NO | NC | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S0*** | | | | | | | | | | |
| **With permanently mounted auxiliary switch and integrated coil circuit (varistor integrated at the factory)** | | | | | | | | | | |
| 12 | **5.5** | 40 | **22** | 2 | 2 | 24 | **3RT2024-1DB44-3MA0** | | **3RT2024-2DB44-3MA0** | |
| 17 | **7.5** | 40 | **22** | 2 | 2 | 24 | **3RT2025-1DB44-3MA0** | | **3RT2025-2DB44-3MA0** | |
| 25 | **11** | 40 | **22** | 2 | 2 | 24 | **3RT2026-1DB44-3MA0** | | **3RT2026-2DB44-3MA0** | |
| 32 | **15** | 50 | **22** | 2 | 2 | 24 | **3RT2027-1DB44-3MA0** | | **3RT2027-2DB44-3MA0** | |
| **With permanently mounted auxiliary switch and integrated coil circuit (diode assembly plugged in at the factory)** | | | | | | | | | | |
| 9 | **4** | 40 | **22** | 2 | 2 | 24 | **3RT2023-1FB44-3MA0** | | **3RT2023-2FB44-3MA0** | |
| 12 | **5.5** | 40 | **22** | 2 | 2 | 24 | **3RT2024-1FB44-3MA0** | | **3RT2024-2FB44-3MA0** | |
| 17 | **7.5** | 40 | **22** | 2 | 2 | 24 | **3RT2025-1FB44-3MA0** | | **3RT2025-2FB44-3MA0** | |
| 25 | **11** | 40 | **22** | 2 | 2 | 24 | **3RT2026-1FB44-3MA0** | | **3RT2026-2FB44-3MA0** | |
| 32 | **15** | 50 | **22** | 2 | 2 | 24 | **3RT2027-1FB44-3MA0** | | **3RT2027-2FB44-3MA0** | |
| 38 | **18.5** | 50 | **22** | 2 | 2 | 24 | **3RT2028-1FB44-3MA0** | | **3RT2028-2FB44-3MA0** | |
| **With voltage tap-off** | | | | | | | | | | |
| 9 | **4** | 40 | **11** | 1 | 1 | 24 | **3RT2023-1BB40-0CC0** | | **3RT2023-2BB40-0CC0** | |
| 12 | **5.5** | 40 | **11** | 1 | 1 | 24 | **3RT2024-1BB40-0CC0** | | **3RT2024-2BB40-0CC0** | |
| 17 | **7.5** | 40 | **11** | 1 | 1 | 24 | **3RT2025-1BB40-0CC0** | | **3RT2025-2BB40-0CC0** | |
| 25 | **11** | 40 | **11** | 1 | 1 | 24 | **3RT2026-1BB40-0CC0** | | **3RT2026-2BB40-0CC0** | |
| 32 | **15** | 50 | **11** | 1 | 1 | 24 | **3RT2027-1BB40-0CC0** | | **3RT2027-2BB40-0CC0** | |
| 38 | **18.5** | 50 | **11** | 1 | 1 | 24 | **3RT2028-1BB40-0CC0** | | **3RT2028-2BB40-0CC0** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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### SIRIUS 3RT contactors, 3-pole up to 250 kW IE3/IE4 ready AC-3e

***DC operation for direct control by PLC***

- Coupling contactors with adapted power consumption
- Suitable for solid-state PLC/F-PLC outputs
- Cannot be expanded with auxiliary switches

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT202.-1KB40

3RT202.-2KB40

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | V | | | | |
| A | **kW** | A | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S0*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** (cannot be expanded with auxiliary switches) Operating range **0.7 ... 1.25 x $U_s$**, power consumption of the solenoid coils **4.5 W** at 24 V | | | | | | | | | | |
| 9 | **4** | 40 | **11** | 1 | 1 | 24 | **3RT2023-1KB40** | | **3RT2023-2KB40** | |
| 12 | **5.5** | 40 | **11** | 1 | 1 | 24 | **3RT2024-1KB40** | | **3RT2024-2KB40** | |
| 17 | **7.5** | 40 | **11** | 1 | 1 | 24 | **3RT2025-1KB40** | | **3RT2025-2KB40** | |
| 25 | **11** | 40 | **11** | 1 | 1 | 24 | **3RT2026-1KB40** | | **3RT2026-2KB40** | |
| 32 | **15** | 50 | **11** | 1 | 1 | 24 | **3RT2027-1KB40** | | **3RT2027-2KB40** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***DC operation for direct control by PLC***

- Coupling contactors with adapted power consumption
- Suitable for solid-state PLC/F-PLC outputs with 2 A
- Can be expanded using front or lateral auxiliary switch (1 x left and 1 x right)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT203.-1KB40

3RT203.-3KB40

3RT204.-1KB40

3RT204.-3KB40

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | V | | | | |
| A | **kW** | A | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S2*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| Operating range **0.8 ... 1.2 x $U_s$**, closing power of the solenoid coils **21.5 W** at 24 V | | | | | | | | | | |
| 41 | **18.5** | 60 | **11** | 1 | 1 | 24 | **3RT2035-1KB40** | | **3RT2035-3KB40** | |
| 51 | **22** | 70 | **11** | 1 | 1 | 24 | **3RT2036-1KB40** | | **3RT2036-3KB40** | |
| 65 | **30** | 80 | **11** | 1 | 1 | 24 | **3RT2037-1KB40** | | **3RT2037-3KB40** | |
| 80 | **37** | 90 | **11** | 1 | 1 | 24 | **3RT2038-1KB40** | | **3RT2038-3KB40** | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | | |
| ***Size S3*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| Operating range **0.8 ... 1.2 x $U_s$**, closing power of the solenoid coils **25 W** at 24 V | | | | | | | | | | |
| 80 | **37** | 125 | **11** | 1 | 1 | 24 | **3RT2045-1KB40** | | **3RT2045-3KB40** | |
| 95 | **45** | 130 | **11** | 1 | 1 | 24 | **3RT2046-1KB40** | | **3RT2046-3KB40** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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### SIRIUS 3RT contactors, 3-pole up to 250 kW IE3/IE4 ready AC-3e

***AC/DC operation***

- Extended operating range of the solenoid coil 0.7 to 1.3 x $U_s$
- Power consumption reduced from closing to closed

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT202.-1N.30

3RT202.-2N.30

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | 50/60 Hz AC or DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | | | | | |
| A | **kW** | A | | | | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S0*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 12 | **5.5** | 40 | **11** | 1 | 1 | 21 ... 28<br>95 ... 130<br>200 ... 280 | **3RT2024-1NB30**<br>**3RT2024-1NF30**<br>**3RT2024-1NP30** | | **3RT2024-2NB30**<br>**3RT2024-2NF30**<br>**3RT2024-2NP30** | |
| 17 | **7.5** | 40 | **11** | 1 | 1 | 21 ... 28<br>95 ... 130<br>200 ... 280 | **3RT2025-1NB30**<br>**3RT2025-1NF30**<br>**3RT2025-1NP30** | | **3RT2025-2NB30**<br>**3RT2025-2NF30**<br>**3RT2025-2NP30** | |
| 25 | **11** | 40 | **11** | 1 | 1 | 21 ... 28<br>95 ... 130<br>200 ... 280 | **3RT2026-1NB30**<br>**3RT2026-1NF30**<br>**3RT2026-1NP30** | | **3RT2026-2NB30**<br>**3RT2026-2NF30**<br>**3RT2026-2NP30** | |
| 32 | **15** | 50 | **11** | 1 | 1 | 21 ... 28<br>95 ... 130<br>200 ... 280 | **3RT2027-1NB30**<br>**3RT2027-1NF30**<br>**3RT2027-1NP30** | | **3RT2027-2NB30**<br>**3RT2027-2NF30**<br>**3RT2027-2NP30** | |
| 38 | **18.5** | 50 | **11** | 1 | 1 | 21 ... 28<br>95 ... 130<br>200 ... 280 | **3RT2028-1NB30**<br>**3RT2028-1NF30**<br>**3RT2028-1NP30** | | **3RT2028-2NB30**<br>**3RT2028-2NF30**<br>**3RT2028-2NP30** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

© Siemens 2023





***AC/DC operation***

- Extended operating range of the solenoid coil 0.8 to 1.1 x $U_s$
- Power consumption reduced from closing to closed

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT203.-1N.30

3RT203.-3N.30

3RT203.-1N.34

3RT203.-1NB34-3MA0

3RT203.-3NB34-3MA0

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | 50/60 Hz AC or DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | V | | | | |
| A | **kW** | A | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S2*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 41 | **18.5** | 60 | **11** | 1 | 1 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2035-1NB30**<br>**3RT2035-1NF30**<br>**3RT2035-1NP30** | | **3RT2035-3NB30**<br>**3RT2035-3NF30**<br>**3RT2035-3NP30** | |
| 51 | **22** | 70 | **11** | 1 | 1 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2036-1NB30**<br>**3RT2036-1NF30**<br>**3RT2036-1NP30** | | **3RT2036-3NB30**<br>**3RT2036-3NF30**<br>**3RT2036-3NP30** | |
| 65 | **30** | 80 | **11** | 1 | 1 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2037-1NB30**<br>**3RT2037-1NF30**<br>**3RT2037-1NP30** | | **3RT2037-3NB30**<br>**3RT2037-3NF30**<br>**3RT2037-3NP30** | |
| 80 | **37** | 90 | **11** | 1 | 1 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2038-1NB30**<br>**3RT2038-1NF30**<br>**3RT2038-1NP30** | | **3RT2038-3NB30**<br>**3RT2038-3NF30**<br>**3RT2038-3NP30** | |
| **With removable auxiliary switch and integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 41 | **18.5** | 60 | **22** | 2 | 2 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2035-1NB34**<br>**3RT2035-1NF34**<br>**3RT2035-1NP34** | | --<br>--<br>-- | |
| 51 | **22** | 70 | **22** | 2 | 2 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2036-1NB34**<br>**3RT2036-1NF34**<br>**3RT2036-1NP34** | | --<br>--<br>-- | |
| 65 | **30** | 80 | **22** | 2 | 2 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2037-1NB34**<br>**3RT2037-1NF34**<br>**3RT2037-1NP34** | | --<br>--<br>-- | |
| 80 | **37** | 90 | **22** | 2 | 2 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2038-1NB34**<br>**3RT2038-1NF34**<br>**3RT2038-1NP34** | | --<br>--<br>-- | |
| **With permanently mounted auxiliary switch and integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 41 | **18.5** | 60 | **22** | 2 | 2 | 20 ... 33 | **3RT2035-1NB34-3MA0** | | **3RT2035-3NB34-3MA0** | |
| 51 | **22** | 70 | **22** | 2 | 2 | 20 ... 33 | **3RT2036-1NB34-3MA0** | | **3RT2036-3NB34-3MA0** | |
| 65 | **30** | 80 | **22** | 2 | 2 | 20 ... 33 | **3RT2037-1NB34-3MA0** | | **3RT2037-3NB34-3MA0** | |
| 80 | **37** | 90 | **22** | 2 | 2 | 20 ... 33 | **3RT2038-1NB34-3MA0** | | **3RT2038-3NB34-3MA0** | |
| **With voltage tap-off and integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 41 | **18.5** | 60 | **11** | 1 | 1 | 20 ... 33 | **3RT2035-1NB30-0CC0** | | **3RT2035-3NB30-0CC0** | |
| 51 | **22** | 70 | **11** | 1 | 1 | 20 ... 33 | **3RT2036-1NB30-0CC0** | | **3RT2036-3NB30-0CC0** | |
| 65 | **30** | 80 | **11** | 1 | 1 | 20 ... 33 | **3RT2037-1NB30-0CC0** | | **3RT2037-3NB30-0CC0** | |
| 80 | **37** | 90 | **11** | 1 | 1 | 20 ... 33 | **3RT2038-1NB30-0CC0** | | **3RT2038-3NB30-0CC0** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT contactors, 3-pole up to 250 kW IE3/IE4 ready AC-3e

### *AC/DC operation*

- Certified and fail-safe 24 V DC control input with max. 20 mA, e.g. for control via the fail-safe output module of a controller (F-PLC) or safety relay
- Achievable Safety Integrity Level (SIL) according to IEC 62061 and Performance Level (PL) according to ISO 13849-1 with corresponding fault diagnostics:
  - With one contactor: SIL 2/PL c
  - With two contactors in series: SIL 3/PL e
  - Fail-safe applications can be implemented using this contactor.
- Extended operating range of the solenoid coil 0.8 to 1.1 x $U_s$
- Power consumption reduced from closing to closed


For more information, see
- Safety technology, page 11/1 onwards
- Guide of use for contactors in safety applications


PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT203.-1S.30

3RT203.-3S.30

3RT204.-1S.30

3RT204.-3S.30

| Rated data | | | Auxiliary contacts | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | 50/60 Hz AC or DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | | | | | | |
| A | **kW** | A | | NO NC | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | |
| ***Size S2*** | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | |
| 41 | **18.5** | 60 | **01** | -- 1 | 21 ... 33<br>83 ... 150<br>175 ... 280 | **3RT2035-1SB30**<br>**3RT2035-1SF30**<br>**3RT2035-1SP30** | | **3RT2035-3SB30**<br>**3RT2035-3SF30**<br>**3RT2035-3SP30** | |
| 51 | **22** | 70 | **01** | -- 1 | 21 ... 33<br>83 ... 150<br>175 ... 280 | **3RT2036-1SB30**<br>**3RT2036-1SF30**<br>**3RT2036-1SP30** | | **3RT2036-3SB30**<br>**3RT2036-3SF30**<br>**3RT2036-3SP30** | |
| 65 | **30** | 80 | **01** | -- 1 | 21 ... 33<br>83 ... 150<br>175 ... 280 | **3RT2037-1SB30**<br>**3RT2037-1SF30**<br>**3RT2037-1SP30** | | **3RT2037-3SB30**<br>**3RT2037-3SF30**<br>**3RT2037-3SP30** | |
| 80 | **37** | 90 | **01** | -- 1 | 21 ... 33<br>83 ... 150<br>175 ... 280 | **3RT2038-1SB30**<br>**3RT2038-1SF30**<br>**3RT2038-1SP30** | | **3RT2038-3SB30**<br>**3RT2038-3SF30**<br>**3RT2038-3SP30** | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | |
| ***Size S3*** | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | |
| 80 | **37** | 125 | **01** | -- 1 | 21 ... 33<br>83 ... 150<br>175 ... 280 | **3RT2045-1SB30**<br>**3RT2045-1SF30**<br>**3RT2045-1SP30** | | **3RT2045-3SB30**<br>**3RT2045-3SF30**<br>**3RT2045-3SP30** | |
| 95 | **45** | 130 | **01** | -- 1 | 21 ... 33<br>83 ... 150<br>175 ... 280 | **3RT2046-1SB30**<br>**3RT2046-1SF30**<br>**3RT2046-1SP30** | | **3RT2046-3SB30**<br>**3RT2046-3SF30**<br>**3RT2046-3SP30** | |
| 110 | **55** | 130 | **01** | -- 1 | 21 ... 33<br>83 ... 150<br>175 ... 280 | **3RT2047-1SB30**<br>**3RT2047-1SF30**<br>**3RT2047-1SP30** | | **3RT2047-3SB30**<br>**3RT2047-3SF30**<br>**3RT2047-3SP30** | |

Accessories and spare parts, see pages 3/69 to 3/119.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***AC/DC operation***

- Extended operating range of the solenoid coil 0.8 to 1.1 x $U_s$
- Power consumption reduced from closing to closed

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT204.-1N.30

3RT204.-3N.30

3RT204.-1N.34

3RT204.-1NB34-3MA0

3RT204.-3NB34-3MA0

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3 and AC-3e, $t_u$: 60 °C | | AC-1, $t_u$: 40 °C | | | | | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | Ident. No. | Version | | 50/60 Hz AC or DC | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | NO | NC | V | | | | |
| A | **kW** | A | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | | |
| ***Size S3*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 80 | **37** | 125 | **11** | 1 | 1 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2045-1NB30**<br>**3RT2045-1NF30**<br>**3RT2045-1NP30** | | **3RT2045-3NB30**<br>**3RT2045-3NF30**<br>**3RT2045-3NP30** | |
| 95 | **45** | 130 | **11** | 1 | 1 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2046-1NB30**<br>**3RT2046-1NF30**<br>**3RT2046-1NP30** | | **3RT2046-3NB30**<br>**3RT2046-3NF30**<br>**3RT2046-3NP30** | |
| 110 | **55** | 130 | **11** | 1 | 1 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2047-1NB30**<br>**3RT2047-1NF30**<br>**3RT2047-1NP30** | | **3RT2047-3NB30**<br>**3RT2047-3NF30**<br>**3RT2047-3NP30** | |
| **With removable auxiliary switch and integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 80 | **37** | 125 | **22** | 2 | 2 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2045-1NB34**<br>**3RT2045-1NF34**<br>**3RT2045-1NP34** | | --<br>--<br>-- | |
| 95 | **45** | 130 | **22** | 2 | 2 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2046-1NB34**<br>**3RT2046-1NF34**<br>**3RT2046-1NP34** | | --<br>--<br>-- | |
| 110 | **55** | 130 | **22** | 2 | 2 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2047-1NB34**<br>**3RT2047-1NF34**<br>**3RT2047-1NP34** | | --<br>--<br>-- | |
| **With permanently mounted auxiliary switch and integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 80 | **37** | 125 | **22** | 2 | 2 | 20 ... 33 | **3RT2045-1NB34-3MA0** | | **3RT2045-3NB34-3MA0** | |
| 95 | **45** | 130 | **22** | 2 | 2 | 20 ... 33 | **3RT2046-1NB34-3MA0** | | **3RT2046-3NB34-3MA0** | |
| 110 | **55** | 130 | **22** | 2 | 2 | 20 ... 33 | **3RT2047-1NB34-3MA0** | | **3RT2047-3NB34-3MA0** | |
| **With voltage tap-off and integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 80 | **37** | 125 | **11** | 1 | 1 | 20 ... 33 | **3RT2045-1NB30-0CC0** | | **3RT2045-3NB30-0CC0** | |
| 95 | **45** | 130 | **11** | 1 | 1 | 20 ... 33 | **3RT2046-1NB30-0CC0** | | **3RT2046-3NB30-0CC0** | |
| 110 | **55** | 130 | **11** | 1 | 1 | 20 ... 33 | **3RT2047-1NB30-0CC0** | | **3RT2047-3NB30-0CC0** | |

Other voltages according to page 3/67 on request.

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT contactors, 3-pole up to 250 kW IE3/IE4 ready AC-3e

***AC/DC operation*** ≂

- Standard operating mechanism 3RT10..-.A
- For screw fixing
- Auxiliary and control conductors: Screw terminals or spring-loaded terminals
- Main conductors: Busbar connections; a connection kit with screws, spring washers and nuts is enclosed.

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT105.-6A.36

3RT106.-6A.36

3RT107.-6A.36

3RT107.-2A.36

| Size | Rated data AC-3 and AC-3e, $t_u$: 60 °C | | | | AC-1, $t_u$: 40 °C | Auxiliary contacts, lateral | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Operational current $I_e$ up to | Rating of three-phase motors at 50 Hz and | | | Operational current $I_e$ up to | Version | | 50/60 Hz AC or DC | Article No. | Price per PU | Article No. | Price per PU |
| | 500 V | **400 V** | 500 V | 690 V | 690 V | NO | NC | V | | | | |
| | A | **kW** | kW | kW | A | | | | | | | |
| **Standard operating mechanism for AC and DC operation (power consumption reduced from closing to closed)** | | | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated at the factory)** | | | | | | | | | | | | |
| **S6** | 115 | **55** | 75 | 110 | 160 | 2 | 2 | 110 ... 127<br>220 ... 240 | **3RT1054-6AF36**<br>**3RT1054-6AP36** | | **3RT1054-2AF36**<br>**3RT1054-2AP36** | |
| | 150 | **75** | 90 | 132 | 185 | 2 | 2 | 110 ... 127<br>220 ... 240 | **3RT1055-6AF36**<br>**3RT1055-6AP36** | | **3RT1055-2AF36**<br>**3RT1055-2AP36** | |
| | 185 | **90** | 132 | 160 | 215 | 2 | 2 | 110 ... 127<br>220 ... 240 | **3RT1056-6AF36**<br>**3RT1056-6AP36** | | **3RT1056-2AF36**<br>**3RT1056-2AP36** | |
| **S10** | 225 | **110** | 160 | On request | 275 | 2 | 2 | 110 ... 127<br>220 ... 240 | **3RT1064-6AF36**<br>**3RT1064-6AP36** | | **3RT1064-2AF36**<br>**3RT1064-2AP36** | |
| | 265 | **132** | 160 | On request | 330 | 2 | 2 | 110 ... 127<br>220 ... 240 | **3RT1065-6AF36**<br>**3RT1065-6AP36** | | **3RT1065-2AF36**<br>**3RT1065-2AP36** | |
| | 300 | **160** | 200 | On request | 330 | 2 | 2 | 110 ... 127<br>220 ... 240 | **3RT1066-6AF36**<br>**3RT1066-6AP36** | | **3RT1066-2AF36**<br>**3RT1066-2AP36** | |
| **S12** | 400 | **200** | 250 | 400 | 430 | 2 | 2 | 110 ... 127<br>220 ... 240 | **3RT1075-6AF36**<br>**3RT1075-6AP36** | | **3RT1075-2AF36**<br>**3RT1075-2AP36** | |
| | 500 | **250** | 315 | 400 | 610 | 2 | 2 | 110 ... 127<br>220 ... 240 | **3RT1076-6AF36**<br>**3RT1076-6AP36** | | **3RT1076-2AF36**<br>**3RT1076-2AP36** | |

Other voltages according to page 3/68 on request.

Accessories and spare parts, see pages 3/69 to 3/119.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***AC/DC operation***

- Certified and fail-safe 24 V DC control input with max. 20 mA, e.g. for control via the fail-safe output module of a controller (F-PLC) or safety relay
- Achievable Safety Integrity Level (SIL) according to IEC 62061 and Performance Level (PL) according to ISO 13849-1 with corresponding fault diagnostics:
  - With one contactor: SIL 2/PL c
  - With two contactors in series: SIL 3/PL e
  - Fail-safe applications can be implemented using this contactor.
- Version with removable lateral auxiliary switches or permanently mounted auxiliary switches
- For screw fixing
- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections; a connection kit with screws, spring washers and nuts is enclosed.

For more information, see

- Safety technology, page 11/1 onwards
- Guide of use for contactors in safety applications

3RT105.-6S.36

3RT106.-6S.36

3RT107.-6S.36

3RT105.-6S.36-3PA0

3RT107.-6S.36-3PA0

| Size | Rated data according to IEC 60947-4-1 AC-3 and AC-3e, $t_u$: 60 °C | | Auxiliary contacts, lateral | | Rated control supply voltage $U_s$ | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Operational current $I_e$ up to | Rating of three-phase motors at 50 Hz and | Version | | 50/60 Hz AC or DC | Article No. | Price per PU | | | |
| | 500 V | 400 V | | | | | | | | |
| | A | kW | NO | NC | V | | | | | |
| **Solid-state operating mechanism** | | | | | | | | | | |
| ***With two removable laterally mounted auxiliary switches*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| **S6** | 115 | **55** | 2 | 2 | 96 ... 127 | **3RT1054-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1054-6SP36** | | 1 | 1 unit | 41B |
| | 150 | **75** | 2 | 2 | 96 ... 127 | **3RT1055-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1055-6SP36** | | 1 | 1 unit | 41B |
| | 185 | **90** | 2 | 2 | 96 ... 127 | **3RT1056-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1056-6SP36** | | 1 | 1 unit | 41B |
| **S10** | 225 | **110** | 2 | 2 | 96 ... 127 | **3RT1064-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1064-6SP36** | | 1 | 1 unit | 41B |
| | 265 | **132** | 2 | 2 | 96 ... 127 | **3RT1065-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1065-6SP36** | | 1 | 1 unit | 41B |
| | 300 | **160** | 2 | 2 | 96 ... 127 | **3RT1066-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1066-6SP36** | | 1 | 1 unit | 41B |
| **S12** | 400 | **200** | 2 | 2 | 96 ... 127 | **3RT1075-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1075-6SP36** | | 1 | 1 unit | 41B |
| | 500 | **250** | 2 | 2 | 96 ... 127 | **3RT1076-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1076-6SP36** | | 1 | 1 unit | 41B |
| ***With two permanently laterally mounted auxiliary switches*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| **S6** | 115 | **55** | 2 | 2 | 96 ... 127 | **3RT1054-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1054-6SP36-3PA0** | | 1 | 1 unit | 41B |
| | 150 | **75** | 2 | 2 | 96 ... 127 | **3RT1055-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1055-6SP36-3PA0** | | 1 | 1 unit | 41B |
| | 185 | **90** | 2 | 2 | 96 ... 127 | **3RT1056-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1056-6SP36-3PA0** | | 1 | 1 unit | 41B |
| **S10** | 225 | **110** | 2 | 2 | 96 ... 127 | **3RT1064-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1064-6SP36-3PA0** | | 1 | 1 unit | 41B |
| | 265 | **132** | 2 | 2 | 96 ... 127 | **3RT1065-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1065-6SP36-3PA0** | | 1 | 1 unit | 41B |
| | 300 | **160** | 2 | 2 | 96 ... 127 | **3RT1066-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1066-6SP36-3PA0** | | 1 | 1 unit | 41B |
| **S12** | 400 | **200** | 2 | 2 | 96 ... 127 | **3RT1075-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1075-6SP36-3PA0** | | 1 | 1 unit | 41B |
| | 500 | **250** | 2 | 2 | 96 ... 127 | **3RT1076-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1076-6SP36-3PA0** | | 1 | 1 unit | 41B |

Accessories and spare parts, see pages 3/69 to 3/119.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT contactors, 3-pole up to 250 kW *IE3/IE4 ready* AC-3e

***AC/DC operation*** ≂

- Solid-state operating mechanism
  - 3RT10..-.N with 24 V DC control signal input
  - 3RT10..-.P with 24 V DC control signal input and with remaining lifetime indicator (RLT)
- For screw fixing
- Auxiliary and control conductors: Screw terminals or spring-loaded terminals
- Main conductors: Busbar connections; a connection kit with screws, spring washers and nuts is enclosed.

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT105.-6N.36

3RT106.-2N.36

3RT107.-6N.36

3RT107.-6P.35

3RT107.-2N.36

| Size | Rated data AC-3 and AC-3e, $t_u$: 60 °C | | | | Rated data AC-1, $t_u$: 40 °C | Auxiliary contacts, lateral | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Operational current $I_e$ up to | Rating of three-phase motors at 50 Hz and | | | Operational current $I_e$ up to | Version | | 50/60 Hz AC or DC | Article No. | Price per PU | Article No. | Price per PU |
| | 500 V | **400 V** | 500 V | 690 V | 690 V | | | | | | | |
| | A | **kW** | kW | kW | A | NO | NC | V | | | | |
| **Solid-state operating mechanism** | | | | | | | | | | | | |
| ***With 24 V DC control signal input e.g. for control by PLC*** | | | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | | | |
| **S6** | 115 | **55** | 75 | 110 | 160 | 2 | 2 | 96 ... 127<br>200 ... 277 | **3RT1054-6NF36**<br>**3RT1054-6NP36** | | **3RT1054-2NF36**<br>**3RT1054-2NP36** | |
| | 150 | **75** | 90 | 132 | 185 | 2 | 2 | 96 ... 127<br>200 ... 277 | **3RT1055-6NF36**<br>**3RT1055-6NP36** | | **3RT1055-2NF36**<br>**3RT1055-2NP36** | |
| | 185 | **90** | 132 | 160 | 215 | 2 | 2 | 96 ... 127<br>200 ... 277 | **3RT1056-6NF36**<br>**3RT1056-6NP36** | | **3RT1056-2NF36**<br>**3RT1056-2NP36** | |
| **S10** | 225 | **110** | 160 | On request | 275 | 2 | 2 | 96 ... 127<br>200 ... 277 | **3RT1064-6NF36**<br>**3RT1064-6NP36** | | **3RT1064-2NF36**<br>**3RT1064-2NP36** | |
| | 265 | **132** | 160 | On request | 330 | 2 | 2 | 96 ... 127<br>200 ... 277 | **3RT1065-6NF36**<br>**3RT1065-6NP36** | | **3RT1065-2NF36**<br>**3RT1065-2NP36** | |
| | 300 | **160** | 200 | On request | 330 | 2 | 2 | 96 ... 127<br>200 ... 277 | **3RT1066-6NF36**<br>**3RT1066-6NP36** | | **3RT1066-2NF36**<br>**3RT1066-2NP36** | |
| **S12** | 400 | **200** | 250 | 400 | 430 | 2 | 2 | 96 ... 127<br>200 ... 277 | **3RT1075-6NF36**<br>**3RT1075-6NP36** | | **3RT1075-2NF36**<br>**3RT1075-2NP36** | |
| | 500 | **250** | 315 | 400 | 610 | 2 | 2 | 96 ... 127<br>200 ... 277 | **3RT1076-6NF36**<br>**3RT1076-6NP36** | | **3RT1076-2NF36**<br>**3RT1076-2NP36** | |
| ***With 24 V DC control signal input · With remaining lifetime indicator (RLT), e.g. for control by PLC*** | | | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | | | |
| **S6** | 115 | **55** | 75 | 110 | 160 | 1 | 1 | 96 ... 127<br>200 ... 277 | **3RT1054-6PF35**<br>**3RT1054-6PP35** | | --<br>-- | |
| | 150 | **75** | 90 | 132 | 185 | 1 | 1 | 96 ... 127<br>200 ... 277 | **3RT1055-6PF35**<br>**3RT1055-6PP35** | | --<br>-- | |
| | 185 | **90** | 132 | 160 | 215 | 1 | 1 | 96 ... 127<br>200 ... 277 | **3RT1056-6PF35**<br>**3RT1056-6PP35** | | --<br>-- | |
| **S10** | 225 | **110** | 160 | On request | 275 | 1 | 1 | 96 ... 127<br>200 ... 277 | **3RT1064-6PF35**<br>**3RT1064-6PP35** | | --<br>-- | |
| | 265 | **132** | 160 | On request | 330 | 1 | 1 | 96 ... 127<br>200 ... 277 | **3RT1065-6PF35**<br>**3RT1065-6PP35** | | --<br>-- | |
| | 300 | **160** | 200 | On request | 330 | 1 | 1 | 96 ... 127<br>200 ... 277 | **3RT1066-6PF35**<br>**3RT1066-6PP35** | | --<br>-- | |
| **S12** | 400 | **200** | 250 | 400 | 430 | 1 | 1 | 96 ... 127<br>200 ... 277 | **3RT1075-6PF35**<br>**3RT1075-6PP35** | | --<br>-- | |
| | 500 | **250** | 315 | 400 | 610 | 1 | 1 | 96 ... 127<br>200 ... 277 | **3RT1076-6PF35**<br>**3RT1076-6PP35** | | --<br>-- | |

Other voltages according to page 3/68 on request.

Accessories and spare parts, see pages 3/69 to 3/119.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Options

***Rated control supply voltages for 3RT20 contactors, possible on request (change of the 10th and 11th digits of the article number)***

Delivery time on request

| Rated control supply voltage $U_s$ | Contactor type / Size | 3RT201, 3RH2 S00 | 3RT202 S0 | 3RT203 S2 | 3RT204 S3 |
|---|---|---|---|---|---|
| **Sizes S00 to S3** | | | | | |
| ***AC operation***[1] | | | | | |
| **Solenoid coils for 50 Hz** (exception: Size S00: 50 and 60 Hz[2]) | | | | | |
| 24 V AC | | B0 | B0 | B0 | B0 |
| 42 V AC | | D0 | D0 | D0 | D0 |
| 48 V AC | | H0 | H0 | H0 | H0 |
| 110 V AC | | F0 | F0 | F0 | F0 |
| 230 V AC | | P0 | P0 | P0 | P0 |
| 240 V AC | | U0 | U0 | U0 | U0 |
| 400 V AC | | V0 | V0 | V0 | V0 |
| **Solenoid coils for 50 and 60 Hz[2]** | | | | | |
| 24 V AC | | B0 | C2 | C2 | C2 |
| 42 V AC | | D0 | D2 | D2 | D2 |
| 48 V AC | | H0 | H2 | H2 | H2 |
| 110 V AC | | F0 | G2 | G2 | G2 |
| 220 V AC | | N2 | N2 | N2 | N2 |
| 230 V AC | | P0 | L2 | L2 | L2 |
| **Solenoid coils (for USA and Canada[3])** | | | | | |
| **50 Hz** | **60 Hz** | | | | |
| 110 V AC | 120 V AC | K6 | K6 | K6 | K6 |
| 220 V AC | 240 V AC | P6 | P6 | P6 | P6 |
| **Solenoid coils (for Japan)** | | | | | |
| **50/60 Hz[4]** | **60 Hz[5]** | | | | |
| 100 V AC | 110 V AC | G6 | G6 | G6 | G6 |
| 200 V AC | 220 V AC | N6 | N6 | N6 | N6 |
| 400 V AC | 440 V AC | R6 | R6 | R6 | R6 |
| ***DC operation***[1] | | | | | |
| 12 V DC | | A4 | A4 | -- | -- |
| 24 V DC | | B4 | B4 | -- | -- |
| 42 V DC | | D4 | D4 | -- | -- |
| 48 V DC | | W4 | W4 | -- | -- |
| 60 V DC | | E4 | E4 | -- | -- |
| 110 V DC | | F4 | F4 | -- | -- |
| 125 V DC | | G4 | G4 | -- | -- |
| 220 V DC | | M4 | M4 | -- | -- |
| 230 V DC | | P4 | P4 | -- | -- |

***Examples***

| | | |
|---|---|---|
| **AC operation** | 3RT2023-1A**P0**0 | Contactor with screw terminals; with solenoid coil for 50 Hz for rated control supply voltage 230 V AC. |
| | 3RT2023-1A**G2**0 | Contactor with screw terminals; with solenoid coil for 50/60 Hz for rated control supply voltage 110 V AC. |
| **DC operation** | 3RT2025-2B**B4**0 | Contactor with spring-loaded terminals; for rated control supply voltage 24 V DC. |
| | 3RT2025-2B**G4**0 | Contactor with spring-loaded terminals; for rated control supply voltage 125 V DC. |

1) For deviating coil voltages and operating ranges of sizes S00 and S0, a SITOP 24 V DC power supply with wide-range input can be used for the coil control, see page 15/1 and Catalog KT 10.1.

2) Coil operating range
- at 50 Hz: 0.8 to 1.1 x $U_s$,
- at 60 Hz: 0.85 to 1.1 x $U_s$.

3) Coil operating range
- Size S00:
  at 50 Hz: 0.85 to 1.1 x $U_s$,
  at 60 Hz: 0.8 to 1.1 x $U_s$,
- Sizes S0 to S3: at 50 Hz and 60 Hz: 0.8 to 1.1 x $U_s$.

4) Coil operating range
- Size S00:
  at 50/60 Hz: 0.85 to 1.1 x $U_s$,
- Size S0:
  at 50 Hz: 0.8 to 1.1 x $U_s$,
  at 60 Hz: 0.85 to 1.1 x $U_s$.

5) Coil operating range at 60 Hz: 0.8 to 1.1 x $U_s$.

| Rated control supply voltage $U_{s\,min}$ to $U_{s\,max}$[1] | Contactor type / Size | 3RT202.-.N S0 | Rated control supply voltage $U_{s\,min}$ to $U_{s\,max}$[1] | Contactor type / Size | 3RT203.-.N S2 | 3RT204.-.N S3 |
|---|---|---|---|---|---|---|
| **Sizes S00 to S3** | | | | | | |
| ***AC/DC operation (50/60 Hz AC or DC)*** | | | | | | |
| 21 ... 28 V AC/DC | | B3 | 20 ... 33 V AC/DC | | B3 | B3 |
| 95 ... 130 V AC/DC | | F3 | 48 ... 80 V AC/DC | | E3 | E3 |
| 200 ... 280 V AC/DC[2] | | P3 | 83 ... 155 V AC/DC | | F3 | F3 |
| | | | 175 ... 280 V AC/DC | | P3 | P3 |

1) Coil operating range
- Size S0: 0.7 x $U_{s\,min}$ to 1.3 x $U_{s\,max}$,
- Sizes S2 and S3: 0.8 x $U_{s\,min}$ to 1.1 x $U_{s\,max}$.

2) The following applies to S0 and $U_{s\,max}$ = 280 V: Upper limit = 1.1 x $U_{s\,max}$

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## SIRIUS 3RT contactors, 3-pole up to 250 kW

***Rated control supply voltages for 3RT10 contactors, possible on request (change of the 10th and 11th digits of the article number)***

Delivery time on request

| Rated control supply voltage | **Contactor type** | **3RT105.-.A, 3RT106.-.A, 3RT107.-.A** | Rated control supply voltage | **Contactor type** | **3RT105.-.N, 3RT106.-.N, 3RT107.-.N** | **3RT105.-.P, 3RT105.-.S, 3RT106.-.P, 3RT106.-.S, 3RT107.-.P, 3RT107.-.S** |
|---|---|---|---|---|---|---|
| $U_{s\,min}$ to $U_{s\,max}$ | **Sizes** | **S6 to S12** | $U_{s\,min}$ to $U_{s\,max}$ | **Sizes** | **S6 to S12** | |
| **Sizes S6 to S12** | | | | | | |
| ***AC/DC operation (50/60 Hz AC or DC) and operating range 0.8 x $U_{s\,min}$ to 1.1 x $U_{s\,max}$*** | | | | | | |
| **Standard operating mechanism** | | | **Solid-state operating mechanism** | | | |
| 23 ... 26 V AC/DC | | B3 | 21 ... 27.3 V AC/DC | | B3 | -- |
| 42 ... 48 V AC/DC | | D3 | 96 ... 127 V AC/DC | | F3 | F3 |
| 110 ... 127 V AC/DC | | F3 | 200 ... 277 V AC/DC | | P3 | P3 |
| 200 ... 220 V AC/DC | | M3 | | | | |
| 220 ... 240 V AC/DC | | P3 | | | | |
| 240 ... 277 V AC/DC | | U3 | | | | |
| 380 ... 420 V AC/DC | | V3 | | | | |
| 440 ... 480 V AC/DC | | R3 | | | | |
| 500 ... 550 V AC/DC | | S3 | | | | |
| 575 ... 600 V AC/DC | | T3 | | | | |

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## Overview

Extensive accessories and spare parts are available for SIRIUS 3RT power contactors and SIRIUS 3RH2 contactor relays.

These components are easily fitted to the contactors without the use of any tools according to requirements.

Overview graphics with mountable accessories:

- 3RT2 contactors, see pages 3/8 to 3/11
- 3RT10, 3RT12 and 3RT14 contactors, see pages 3/12 to 3/16
- 3RH2 contactor relays, see page 5/5

**More information**

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Contactor

| Version | For contactors<br>3RT2, sizes S00 to S3; 3RH2, size S00 | 3RT105 to 3RT107, 3RT126 and 3RT127, 3RT145 to 3RT147; sizes S6 to S12 | Selection and ordering data<br>Page |
|---|---|---|---|
| **Accessories for 3RT contactors and 3RH2 contactor relays** | | | |
| ***Auxiliary switches*** | | | |
| **Instantaneous** | 3RH29.1 | 3RH19.1 | 3/81 ... 3/94 |
| **Delayed** | | | |
| • Pneumatic time-delay auxiliary switches | 3RT2927-2P..1 | -- | 3/95 |
| • Solid-state time-delay auxiliary switches | 3RA2813, 3RA2814, 3RA2815 | 3RT1926-2E/-2F/-2G | 3/95, 3/96 |
| ***Surge suppressors*** | | | |
| • Without LED | 3RT29.6-1B/-1C/-1D/-1E | 3RT1956-1C | 3/97, 3/98 |
| • With LED | 3RT29.6-1J/-1L/-1M | -- | 3/98 |
| ***Modules for contactor control*** | | | |
| **Coupling links for control by PLC** | 3RH29.4-.GP11 | -- | 3/99 |
| **3RA28 function modules** | | | |
| • For direct on-line starting: ON delay or OFF-delay | 3RA2811, 3RA2812, 3RA2831, 3RA2832 | -- | 3/100 |
| • For star-delta (wye-delta) starting | 3RA2816 | -- | 3/100 |
| **3RA27 function modules for IO-Link or AS-Interface** | | | |
| • For direct-on-line, reversing or star-delta (wye-delta) starting | 3RA271.-.A/-.B/-.C | -- | 3/101, 3/102 |
| **Mechanical latching blocks** | 3RT2926-3A.31 | -- | 3/103 |
| **OFF-delay devices for contactors with AC/DC and DC operation** | 3RT2916-2B.01 | -- | 3/103 |
| ***Link modules*** | | | |
| **Link modules from motor starter protector to contactor** | 3RA.9.1 | -- | 7/61 |
| **Safety main current connectors for two contactors** | 3RA29.6-1A | -- | 3/104 |
| **Assembly kits** | | | |
| • For reversing contactor assemblies | 3RA29.3-2AA. | 3RA19.3-2A | 3/104 |
| • For contactor assemblies for star-delta (wye-delta) starting | 3RA29..-2BB., 3RA29.3-2C | 3RA1953-3G, 3RA19.3-2./-3. | 3/105, 3/106 |
| **Single wiring modules** | 3RA.9.3-3.A. | 3RA19.3-3. | 3/107 |
| **Star jumpers (links for paralleling), 3-pole** | 3RT.9.6-4BA3. | 3RT19.6-4BA31 | 3/107 |
| **Mechanical interlock kits for two contactors** | 3RA29.2-2H | -- | 3/108 |
| **Mechanical interlocks for contactor assemblies** | 3RA2934-2B | 3RA1954-2. | 3/108 |
| **Mechanical connectors for contactor assemblies** | 3RA29.2-2. | 3RA1932-2D | 3/108 |
| ***Connection modules/adapters*** | | | |
| **Links for paralleling for main conducting paths** | 3RT.9.6-4BB.1 | -- | 3/109 |
| **1-phase infeed terminals** | 3RA2943-3L | -- | 3/110 |
| **3-phase infeed terminals** | 3RA2913-3K, 3RV29.5-5A. | -- | 3/110 |
| • With increased clearance and creepage distances | 3RV2935-5E | -- | 3/110 |
| **3-phase busbars** | 3RV1915-1AB | -- | 3/110 |
| **Terminal blocks for connecting auxiliary conductors to main terminals** | | | |
| • Box terminal blocks | 3RT2946-4G | 3RT19..-4G | 3/110 |
| • Box terminal for auxiliary conductor connection, 1-pole | -- | 3TX7500-0A | 3/110 |
| • Auxiliary conductor terminals, 3-pole | 3RT2946-4F | -- | 3/110 |
| **Solder pin adapters for mounting contactors on printed circuit boards** | 3RT1916-4KA. | -- | 3/111 |
| **Coil connection modules for connections from top or from bottom** | 3RT2926-4R.1. | -- | 3/111 |
| **Connection module (adapter and plug) for contactors with screw terminals** | | | |
| • Adapters | 3RT19.6-4RD01 | -- | 3/111 |
| • Motor feeder connector | 3RT1900-4RE01 | -- | 3/111 |

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| Version | For contactors | | Selection and ordering data |
|---|---|---|---|
| | 3RT2, sizes S00 to S3; 3RH2, size S00 | 3RT105 to 3RT107, 3RT126 and 3RT127, 3RT145 to 3RT147; sizes S6 to S12 | Page |
| **Accessories for 3RT contactors and 3RH2 contactor relays (continued)** | | | |
| ***Covers*** | | | |
| **Terminal covers** | 3RT1946-4EA1, 3RT29.6-4EA. | 3RT1956-4EA., 3RT1966-4EA., 3TX65.6-3B | 3/112 |
| **Sealable covers** | 3RT2916-4MA10 | 3RT1926-4MA10 | 3/112 |
| ***Miscellaneous accessories*** | | | |
| **Base plates** | | | |
| • For reversing contactor assemblies | -- | 3RT19.2-2A | 3/113 |
| • For contactor assemblies for star-delta (wye-delta) starting | 3RA29.2-2F | 3RA19.2-2. | 3/113 |
| **Adapters for screw fixing** | 3RT1926-4P | -- | 3/113 |
| **Connection kit for one complete contactor** | -- | 3RT19..-4PA00 | 3/113 |
| **EMC suppression modules** | 3RT2916-1P . . | -- | 3/113 |
| **Additional load modules** | 3RT2916-1GA00 | -- | 3/114 |
| **LED modules for displaying contactor operation** | 3RT2926-1QT00 | 3RT1926-1QT00 | 3/114 |
| **Control kit** | 3RT29.6-4MC00 | -- | 3/114 |
| **Insulation stop for securely holding back the conductor insulation for conductors up to 1 $mm^2$** | 3RT2916-4JA02 | 3RT1916-4JA02 | 3/115 |
| **Tools for opening spring-loaded terminals** | 3RA2908-1A | 3RA2908-1A | 3/115 |
| **Blank labels** | 3RT2900-1SB.0 | 3RT2900-1SB.0 | 3/115 |
| **Spare parts for 3RT2 contactors** | | | |
| **Solenoid coils** | 3RT29..-5...1 | -- | 3/116, 3/117 |
| **Withdrawable coils** | -- | 3RT19..-5.... | 3/118 |
| **Contacts with fixing parts** | 3RT29..-6. | 3RT19..-6. | 3/119 |
| **Arc chutes** | -- | 3RT19..-7. | 3/119 |

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***Auxiliary switches***

The auxiliary switches can be designed as force-guided contacts in 3RH contactor relays or also as mirror contacts in the case of 3RT power contactors.

For more information on force-guided operation and mirror contacts, see Manuals → "More information", page 3/76, and in the selection and ordering data, page 3/81 onwards.

***Solid-state time-delay auxiliary switches for mounting on 3RT2 contactors and 3RH2 contactor relays***

See pages 3/76 and 3/95

The 3RA28 solid-state time-delayed auxiliary switches which can be mounted on the contactor are designed for applications in the range from 24 to 240 V AC/DC (wide voltage range). Both the electrical and mechanical connection are made by simple snapping on and locking.

The time-delay auxiliary switch is supplied with power directly by two plug-in contacts through the coil terminals of the contactor, in parallel with A./A2.

A protection circuit (varistor) is integrated in each module.

A sealable cover is available to protect against careless adjustment of the set times.

Note:

Mounting more auxiliary switches on the contactor is not permitted.

***Surge suppressors***

- Without LED (also for spring-loaded terminals)
  Sizes S00 to S3, see page 3/97
- With LED (also for spring-loaded terminals)
  Sizes S00 to S3, see page 3/98

All 3RT2 contactors and 3RH2 contactor relays can be retrofitted with RC elements or varistors for damping switching overvoltages in the coil. Diodes or diode assemblies (combination of interference suppression diode and Zener diode for short break times) can also be used.

The surge suppressors are plugged onto the front of size S00 contactors. Space is provided for them next to a snap-on auxiliary switch.

Varistors, RC elements or diode assemblies can be plugged onto the front of size S0 to S3 contactors. Exception: For size S3, the RC element is inserted on the front into the recesses to the left of the connection block.

Coupling contactors are supplied either without overvoltage damping or with a suppressor diode, varistor or diode connected as standard, according to the version.

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more detailed information about how damping affects the time response, see Equipment Manual.

***Coupling links for control by PLC***

See pages 3/78 and 3/99

- Operation with 24 V DC
- Operating range 17 to 30 V
- Low power consumption of 0.5 W
- An LED indicates the switching state.

The 3RH2924-1GP11 coupling link has an integrated surge suppressor (varistor) for the contactor coil being switched and is mounted on the size S0 contactor coil via a coil connection module.

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***3RA28 function modules for mounting on 3RT2 contactors and 3RH2 contactor relays***

See pages 3/79 and 3/100

Simply by being plugged in place, the SIRIUS function modules enable different functionalities required for the assembly of starters to be realized in the feeder. The function modules and wiring kits thus help to reduce the wiring work within the feeder practically to zero.

Protection of the device connections

The specifications for short-circuit protection (fuses, circuit breakers, or miniature circuit breakers) are available for the device connections of the main circuit and the auxiliary circuit.

In order to ensure a holistic view for the protection of the device connections, the manufacturer is obliged to provide all relevant information for short-circuit protection and overcurrent protection.

For more information, for example if device connections for the control supply voltage, the supply voltage, or digital inputs/digital outputs are not connected to self-limiting current sources or energy sources, see Equipment Manual or the technical product data sheet.

SIRIUS function modules for direct-on-line starting

The electronic timing relays which can be mounted on the contactor are available in these versions:

- Sizes S00 and S0 for applications in the range from 24 to 240 V AC/DC (wide voltage range)
- Sizes S2 and S3 for applications in either the range from 24 to 90 V AC/DC or 90 to 240 V AC/DC

Both the electrical and mechanical connection are made by simple snapping on and locking.

A protection circuit (varistor) is integrated in each module.

The electronic timing relay with semiconductor output uses two contact legs to actuate the contactor underneath by means of a semiconductor after the set time *t* has elapsed.

The switching state feedback is performed by a mechanical switching state indicator (plunger). In addition, the auxiliary switches in the contactors are freely accessible and can be used for feedbacks to the control system or for signal lamps.

A sealable cover is available to protect against careless adjustment of the set times.

The snap-on function modules for direct-on-line starting are used above all for realizing timing functions independently of the control system.

With the OFF-delay variant of the timing relay it is possible for example for the fan motor for cooling a main drive to be switched off with a delay so that sufficient cooling after operation is guaranteed; the programmer of the control system does not need to worry about such technical details of the plant.

The ON-delay timing relays enable for example the time-delayed starting of several drives so that the summation starting current does not rise too high, which could result in voltage failure.

The use of snap-on function modules for direct-on-line starting results in the following advantages:

- Reduction of control current wiring
- Prevention of wiring errors
- Reduction of testing costs
- Implementation of timing functions independently of the control system
- Less space required in the control cabinet compared to a separate timing relay
- No additive protection circuit required (varistor integrated)

Assembly of reversing starters

We offer ready-made wiring kits for the assembly of reversing starters. Use of these wiring kits offers further advantages, see page 3/148.

SIRIUS function modules for star-delta (wye-delta) starting

Both interlocking and timing functions are required for the assembly of star-delta (wye-delta) starters. With the function modules for star-delta (wye-delta) starting and the matching link modules for the main circuit, these starters can be assembled easily and with absolutely no errors.

The entire sequence in the control circuit is integrated in the snap-on modules. This covers:

- An adjustable star time *t* from 0.5 to 60 s
- A non-adjustable dead interval of 50 ms
- Electrical contacting of the contactors by means of coil pick-off (contact legs)
- Feedback of the switching state at the contactor using a mechanical switch position indicator (plunger)
- Electrical interlocking between the contactors

These modules do not require their own terminals and can therefore be used for contactors with both screw and spring-loaded terminals in all the sizes S00 to S3. To start the star-delta (wye-delta) starter, only the first of the three contactors (line contactor) is actuated, like in the case of a direct-on-line starter. All other functions then take place inside the individual modules.

This also offers advantages if the timing function was previously implemented in a controller, as it again results in a significant reduction in the number of PLC outputs, the programming work and the wiring outlay.

The kits for the main circuit include the mechanical interlock, the star jumper, the wiring modules at the top and at the bottom, and the required connectors or connecting clips.

A protection circuit (varistor) is integrated in the basic module.

The function modules for star-delta (wye-delta) starting are mostly used where current-limiting measures for starting a drive are required and a high level of availability is essential at the same time. This technology has been used with success for several decades and has the additional advantage of requiring relatively little know-how. Through the use of function modules, the assembly work with simple standard components is even easier and absolutely error-free.

The use of function modules for star-delta (wye-delta) starting results in the following advantages:

- Operation solely through the line contactor A1/A2 – no further control current wiring needed
- Prevention of wiring errors
- Reduction of testing costs
- Integrated electrical interlocking saves costs and prevents errors
- Less space needed in the control cabinet compared to using a separate timing relay
- Adjustable starting in star mode from 0.5 to 60 s
- Independent of the contactor's control supply voltage (24 to 240 V AC/DC)
- Varistor integrated – no additive protection circuit required
- Mechanically coded assembly enables easy configuration and reliable wiring
- Fewer versions – one module kit for screw and spring-loaded connection and for all the contactor sizes S00 to S3
- Mechanical interlocking (with wiring kit for the main circuit)

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***SIRIUS 3RA27 function modules for IO-Link or AS-Interface for mounting on 3RT2 contactors***

See pages 3/80 and 3/101

The SIRIUS 3RA27 function modules enable the assembly of starters and contactor assemblies for direct-on-line, reversing and star-delta (wye-delta) starting without any additional, complicated wiring of the individual components. They include the key control functions, e.g. timing and interlocking, required for the particular feeder and can be connected to the control system via either IO-Link or AS-Interface.

The electrical and mechanical connection to the contactor is established by snapping on and locking the respective modules. An additive protection circuit for the individual contactors can be dispensed with completely because a varistor is integrated in the modules. Feedback from the contactor contacts is performed with Hall sensors which provide reliable feedback on the switching state even under extremely dusty conditions.

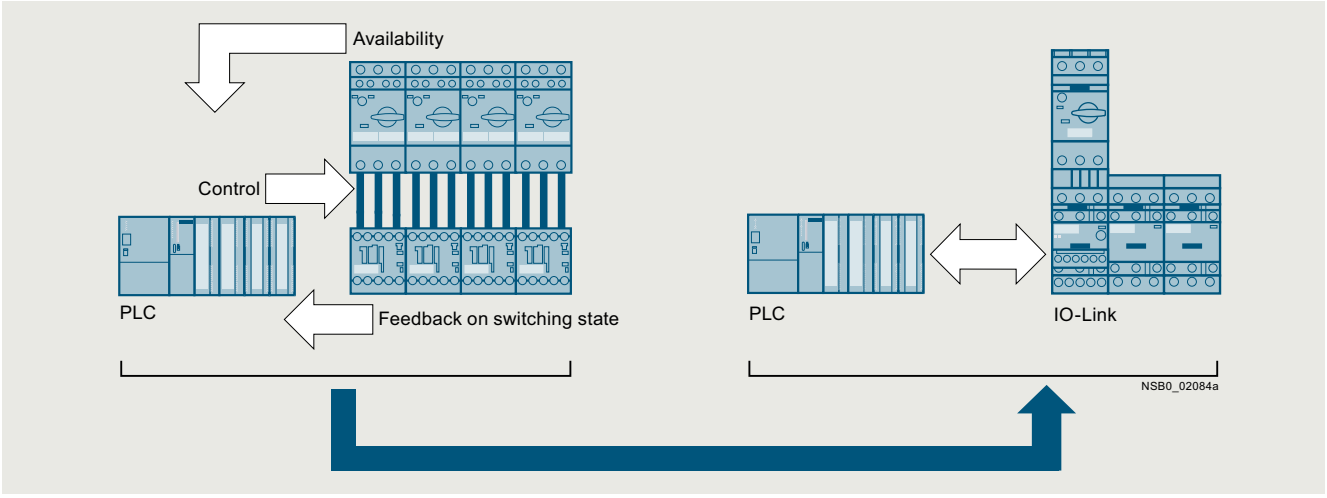
The starters are connected to the higher-level control system through IO-Link, with the possibility of connecting up to four starters as a group to one port of the IO-Link master,

Optionally, the connection can be made via AS-Interface (specification V2.1 or higher, in A/B technology). As a result, up to 62 starters can be connected to one master and the address is entered in the normal manner with an addressing unit.

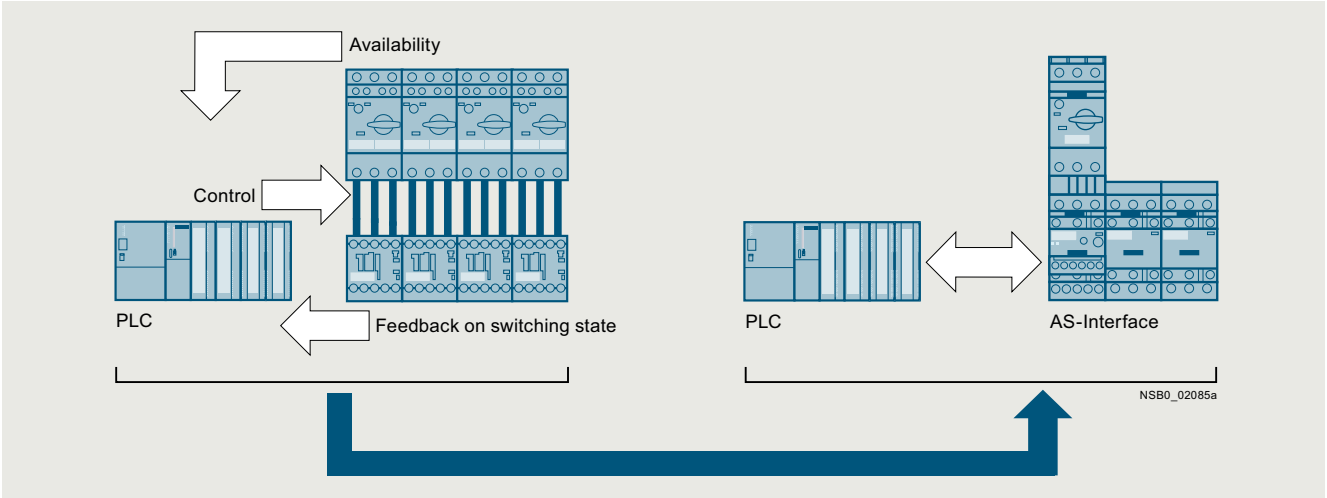
Through this type of connection to the control system, a maximum of wiring is saved. In the case of AS-Interface, the wiring amounts to the control supply voltage and the two individual wires for AS-Interface.

The following essential signals are thus transmitted:

- Availability of the feeder in response to an indirect inquiry from the motor starter protector/circuit breaker
- Starter control
- Feedback concerning the switching state of the starter




Signal transmission through IO-Link




Signal transmission through AS-Interface

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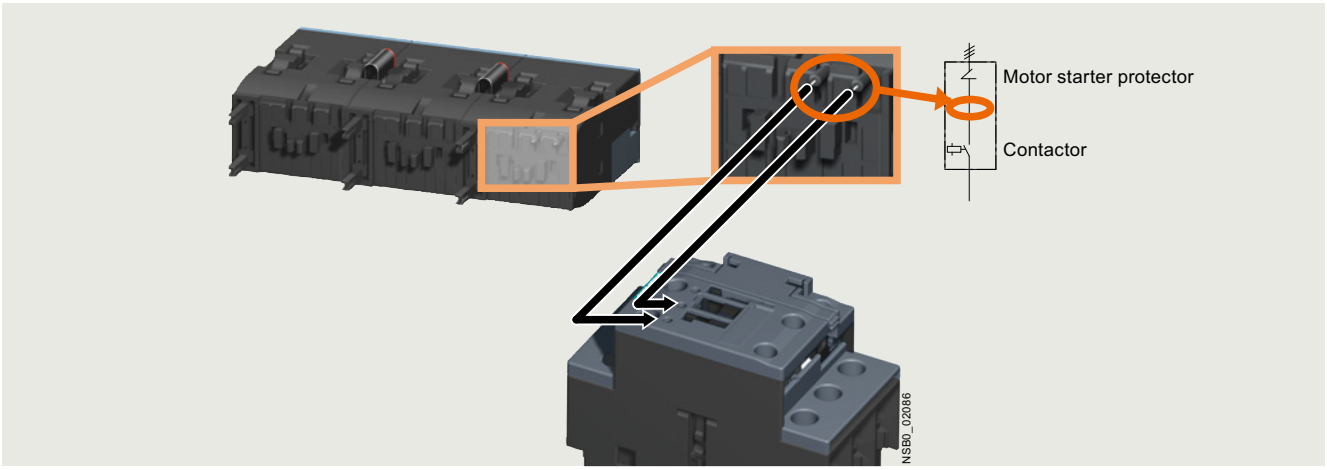
The inquiry from the motor starter protector/circuit breaker does not take place through additive wiring between the auxiliary switch and the module but by means of a voltage inquiry at the contactor input.

This requires special versions of the 3RT20..-.....-0CC0 contactors with voltage tap-off (see pages 3/53, 3/57, 3/61 and 3/63).




Availability signal through voltage tap-off

The following benefits result from the use of SIRIUS 3RA27 function modules:

- Reduction of control current wiring. In the case of IO-Link to no more than three cables for four feeders.
- Elimination of testing costs and wiring errors
- Reduction of configuration work
- Parameter server functionality
- Integration in TIA means unambiguous IO-Link diagnostics if a fault occurs
- Dispensing with IO modules saves space in the control cabinet
- All essential timing and interlocking functions for reversing duty and star-delta (wye-delta) starting are integrated
- No additive protection circuit required

For more information on IO-Link and AS-Interface, see "Industrial communication", page 2/1 onwards.

Protection of the device connections

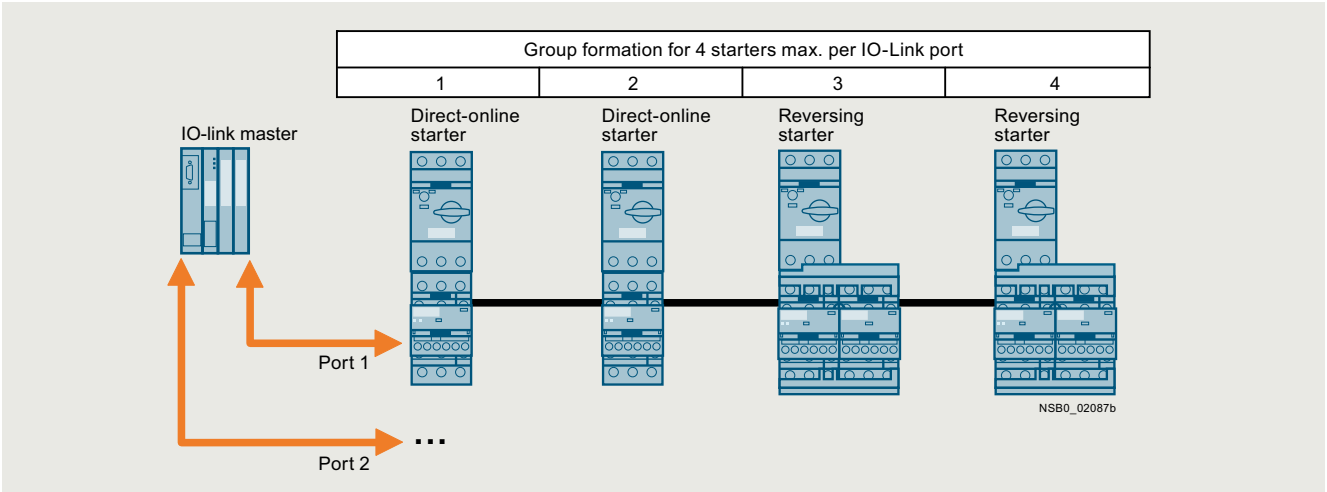
The specifications for short-circuit protection (fuses, circuit breakers, or miniature circuit breakers) are available for the device connections of the main circuit and the auxiliary circuit.

In order to ensure a holistic view for the protection of the device connections, the manufacturer is obliged to provide all relevant information for short-circuit protection and overcurrent protection.

For more information, for example if device connections for the control supply voltage, the supply voltage, or digital inputs/digital outputs are not connected to self-limiting current sources or energy sources, see Equipment Manual or the technical product data sheet.

SIRIUS 3RA2711 function modules for IO-Link for mounting on 3RT2 contactors

By grouping up to four starters, it is possible to connect up to 16 starters to one master of the ET 200SP or S7-1200. In this case all the signals of the individual controls are made available directly in the process image of the input through only three individual wires per starter group. If the same potential is present at the ET 200SP or S7-1200 master and at the switching devices, the wiring can be further reduced by connecting the supply voltage of the contactor coils to the communication wires via jumpers.




Group formation with IO-Link

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In case of a malfunction, the corresponding error signals are also sent directly to the PLC in acyclic mode. This is in addition to transmission of the switching signals and status signals.

Possible error signals:

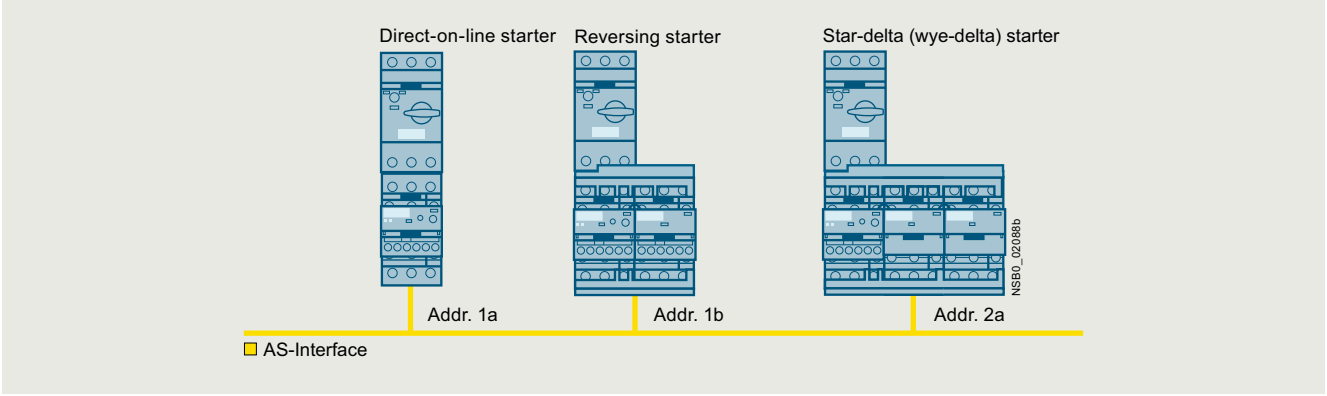
- Switching element defective
- No main voltage (motor starter protector tripped)
- No control supply voltage
- Limit position on the right/on the left
- Manual mode
- Process image fault

This easy integration of the starters in the TIA world does not limit the flexibility in the field in the least. For example, all function modules have special terminals in order to enable direct local disconnection. These terminals can be connected for example to a position switch. The input interrupts the voltage supply to the contactor coil directly, i.e. without going through the PLC. These terminals are jumpered in the delivery state.

Local manual operation of the complete starter group is also straightforward using a handheld device. The latter is easily connected to the last starter and can be built into the front panel of the control cabinet if required. This offers significant advantages particularly for commissioning.

SIRIUS function modules with IO-Link are used above all in machines and plants in which there are several motor feeders in one control cabinet. Using IO-Link, the connection of these feeders to the automation level is easy, quick and error-free. And with IO modules no longer needed, the width of the PLC is far smaller.

SIRIUS 3RA2712 function modules for AS-Interface for mounting on 3RT2 contactors




Topology with AS-Interface

This easy integration of the starters in the TIA world does not limit the flexibility in the field in the least. For example, all function modules have special terminals in order to enable direct local disconnection. These terminals can be connected for example to a position switch. The input interrupts the voltage supply to the contactor coil directly, i.e. without going through the PLC. These terminals are jumpered in the delivery state.

SIRIUS function modules with AS-Interface are recommended above all in machines and plants requiring easy connection of several different sensors and actuators both inside and outside the control cabinet to the higher-level control system. And with IO modules no longer needed, the width of the PLC is far smaller.

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3

## Technical specifications

| More information | |
|---|---|
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Contactor | FAQs |
| Technical specifications | • SIRIUS 3RT2 contactors and SIRIUS 3RH2 contactor relays, see https://support.industry.siemens.com/cs/ww/en/ps/16208/faq |
| • SIRIUS 3RT2 contactors and SIRIUS 3RH2 contactor relays, see https://support.industry.siemens.com/cs/ww/en/ps/16208/td | • SIRIUS 3RT1 contactors, see https://support.industry.siemens.com/cs/ww/en/ps/16209/faq |
| • SIRIUS 3RT1 contactors, see https://support.industry.siemens.com/cs/ww/en/ps/16209/td | System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 |
| | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60306557 |

### *Solid-state time-delay auxiliary switches for mounting on 3RT201 to 3RT204 (sizes S00 to S3) and 3RH2 contactor relays (size S00)*

| Type | | | 3RA2813 | 3RA2814 | 3RA2815 |
|---|---|---|---|---|---|
| Function | | | ON-delay | OFF-delay with control signal | OFF-delay without control signal |
| **General data** | | | | | |
| **Dimensions** (basic unit with mounted solid-state time-delay auxiliary switch) | | | See 3RT2 contactors (pages 3/29, 3/32, 3/35, 3/38) and 3RH2 contactor relays (page 5/8) | | |
| **Rated insulation voltage $U_i$** Pollution degree 3, overvoltage category III | | V AC | 300 | | |
| **Rated impulse withstand voltage $U_{imp}$** | | kV AC | 4 | | |
| **Permissible ambient temperature** | | | | | |
| • During operation | | °C | -25 ... +60 | | |
| • During storage | | °C | -40 ... +80 | | |
| **Electromagnetic compatibility (EMC)** | | | IEC 61000-6-2, IEC 61000-6-4, IEC 61812-1, IEC 60947-4-1 | | |
| **Overvoltage protection** | | | Varistor integrated | | |
| **Control** | | | | | |
| **Operating range of excitation** | | | 0.85 ... 1.1 x $U_s$, 0.95 ... 1.05 times the rated frequency | | |
| **Rated power** | | W | 1 | | |
| • Power consumption at 230 V AC, 50 Hz | | VA | 2 | | |
| **Recovery time** | | ms | 150 | | -- |
| **Minimum ON duration** | | ms | -- | 35 | 200 |
| **Setting accuracy,** typ., with reference to upper limit of scale | | | ± 15% | | |
| **Repeat accuracy,** max. | | | ± 1% | | |
| **Load side** | | | | | |
| **Rated operational currents $I_e$** | | | | | |
| • AC-15 at 24 ... 250 V, 50 Hz | | A | 3 | | |
| • DC-13 | - At 24 V | A | 1 | | |
| | - At 125 V | A | 0.2 | | |
| | - At 250 V | A | 0.1 | | |
| **Mechanical endurance** | | Operating cycles | $10 \times 10^6$ | | |
| **Electrical endurance** at AC-15, 250 V, 3 A | | Operating cycles | 100 000 | | |
| **Residual current,** max. | | mA | -- | | |
| **Voltage drop,** max., with conducting output | | VA | -- | | |
| **Short-circuit protection** | | | | | |
| • Fuse links, operational class gG: DIAZED, type 5SB | | A | 4 | | |

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| Type | | 3RA2813 | 3RA2814 | 3RA2815 |
|---|---|---|---|---|
| Function | | ON-delay | OFF-delay with control signal | OFF-delay without control signal |
| **Conductor cross-sections** | | | | |
| **Connection type** (1 or 2 conductors can be connected) | | Screw terminals | | |
| • Solid | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5) | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) | | |
| • Terminal screws | | M3 (for standard screwdriver size 2 or Pozidriv 2) | | |
| • Tightening torque | Nm | 0.8 ... 1.2 | | |
| **Connection type** (1 or 2 conductors can be connected) | | Spring-loaded terminals | | |
| • Solid | $mm^2$ | 2 x (0.25 ... 1.5) | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.25 ... 1.5) | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.25 ... 1.5) | | |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 16) | | |
| • Operating devices | mm | 3.0 x 0.5 | | |

### *Solid-state time-delay auxiliary switches, for snapping onto 3RT1 contactors*

| Type | | 3RT1926-2E, 3RT1926-2F, 3RT1926-2G |
|---|---|---|
| Sizes | | S6 to S12 |
| **General data** | | |
| **Dimensions (W x H x D)** | mm | 33 x 46 x 73 |
| **Rated insulation voltage $U_i$** Pollution degree 3, overvoltage category III according to IEC 60664-1 | V AC | 300 |
| **Permissible ambient temperature** | | |
| • During operation | °C | -25 ... +60 |
| • During storage | °C | -40 ... +85 |
| **Electromagnetic compatibility (EMC)** | | IEC 61812-1 |
| **Control** | | |
| **Operating range of excitation** | | 0.85 ... 1.1 x $U_s$, 0.95 ... 1.05 times the rated frequency |
| **Rated power** | W | 2 |
| Power consumption at 230 V AC, 50 Hz | VA | 4 |
| **Recovery time** | ms | 150 |
| **Minimum ON duration** | ms | 200 (with OFF-delay) |
| **Setting accuracy,** typ., with reference to upper limit of scale | % | ± 15 |
| **Repeat accuracy,** max. | % | ± 1 |

| Type | | 3RT1926-2E, 3RT1926-2F, 3RT1926-2G |
|---|---|---|
| Sizes | | S6 to S12 |
| **Load side** | | |
| **Rated operational currents $I_e$** | | |
| • AC-15, 230 V, 50 Hz | A | 3 |
| • DC-13, 24 V | A | 1 |
| • DC-13, 110 V | A | 0.2 |
| • DC-13, 230 V | A | 0.1 |
| **Short-circuit protection** | | |
| Fuse links, operational class gG: DIAZED, type 5SB | A | 4 |
| **Mechanical endurance** | Operating cycles | 10 x $10^6$ |
| **Conductor cross-sections** | | |
| **Connection type** (1 or 2 conductors can be connected) | | Screw terminals |
| • Solid | $mm^2$ | 2 x (0.5 ... 1.5), 2 x (0.75 ... 4) |
| • Finely stranded with end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) |
| • AWG cables, solid or stranded | AWG | 2 x (18 ... 14) |
| • Terminal screws | | M3 |
| • Tightening torque | Nm | 0.8 ... 1.2 |

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3

***Coupling links for control by PLC***

| Type | | 3RH2924-1GP11 | 3RH2914-.GP11 |
|---|---|---|---|
| Mounting on contactors of size | | S0 | S00 to S3 |
| **General data** | | | |
| **Standards** | | IEC 60947 | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 300 | |
| **Protective separation** between coil and contacts According to IEC 60947-1, Annex N | V AC | Up to 300 | |
| **Permissible ambient temperature** | | | |
| • During operation | °C | -25 ... +60 | |
| • During storage | °C | -40 ... +80 | |
| **Control side** | | | |
| **Rated control supply voltage $U_s$** | V DC | 24 | |
| **Operating range** | V DC | 17 ... 30 | |
| **Power consumption at $U_s$** | W | 0.5 | |
| **Nominal current input** | mA | 20 | |
| **Release voltage** | V | ≥ 4 | |
| **Function display** | | Yellow LED | |
| **Protection circuit** | | Varistors | |
| **Load side** | | | |
| **Mechanical endurance** | Operating cycles | 20 million | 10 million |
| **Electrical endurance at $I_e$** | Operating cycles | 0.1 million | |
| **Switching frequency** | 1/h | 5 000 | |
| **Make-time** | ms | Approx. 7 | |
| **Break-time** | ms | Approx. 4 | |
| **Bounce time** | ms | Approx. 2 | |
| **Contact material** | | AgSnO2 | |
| **Switching voltage** | V AC/DC | 24 ... 250 | |
| **Rated operational current $I_e$** | | | |
| • AC-15/AC-14 at 230 V | A | 3 | |
| • DC-13 at 230 V | A | 0.1 | |
| **Permissible residual current** of the electronics (with 0 signal) | mA | 2.5 | |
| **Conductor cross-sections** | | | |
| **Connection type** (1 or 2 conductors can be connected) | | **Screw terminals** | |
| • Solid | $mm^2$ | 2 x (0.5 ... 2.5) | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5) | |
| • Terminal screws | | M3 | |
| **Connection type** (1 or 2 conductors can be connected) | | **Spring-loaded terminals** | |
| • Solid | $mm^2$ | -- | 2 x (0.25 ... 1.5) |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | -- | 2 x (0.25 ... 1.5) |
| • Finely stranded without end sleeve | $mm^2$ | -- | 2 x (0.25 ... 1.5) |
| • AWG cables, solid or stranded | AWG | -- | 2 x (24 ... 16) |
| • Operating devices | mm | -- | 3.0 x 0.5 |

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***3RA28 function modules for mounting on 3RT2 contactors and 3RH2 contactor relays***

| | | | | | | |
|---|---|---|---|---|---|---|
| Type | | **3RA2811** | **3RA2831** | **3RA2812** | **3RA2832** | **3RA2816** |
| Mounting on contactors of size | | **S00, S0** | **S2, S3** | **S00, S0** | **S2, S3** | **S00 to S3** |
| Function | | **For direct-on-line starting** | | | | **For star-delta (wye-delta) starting** |
| | | **ON-delay** | | **OFF-delay with control signal** | | |
| **General data** | | | | | | |
| **Dimensions** (basic unit with mounted function module) | | See 3RT2 contactors (pages 3/29, 3/32, 3/35, 3/38) and 3RH2 contactor relays (page 5/8) | | | | |
| **Rated insulation voltage $U_i$** Pollution degree 3, overvoltage category III | V AC | 300 | | | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV AC | 4 | | | | |
| **Overvoltage protection** | | Varistor integrated | | | | |
| **Recovery time** | ms | 50 | | | | 150 |
| **Minimum ON duration** | ms | -- | | 35 | | -- |
| **Setting accuracy, typ.**, with reference to upper limit of scale | | ± 15% | | | | |
| **Repeat accuracy, max.** | | ± 1% | | | | |
| **Permissible ambient temperature** | | | | | | |
| • During operation | °C | -25 ... +60 | | | | |
| • During storage | °C | -40 ... +80 | | | | |
| **Electromagnetic compatibility (EMC)** | | IEC 61000-6-2, IEC 61000-6-4, IEC 61812-1, IEC 60947-4-1 | | | | |
| **Control side** | | | | | | |
| **Operating range of excitation** | | 0.85 ... 1.1 x $U_s$, 0.95 ... 1.05 times the rated frequency | | | | |
| **Rated power** | W | 1 | | | | |
| • Power consumption at 230 V AC, 50 Hz | VA | 1 | | | | 2 |
| **Load side** | | | | | | |
| **Mechanical endurance** | Operating cycles | 100 x $10^6$ | | | | 10 x $10^6$ |
| **Electrical endurance** | | | | | | |
| • With 3RT2028 contactor | Operating cycles | 100 000 | | | | -- |
| • At AC-15, 250 V, 3 A | Operating cycles | -- | | | | 100 000 |
| **Residual current, max.** | mA | 5 | -- | | | -- |
| **Voltage drop, max.**, with conducting output | VA | 3.5 | -- | | | -- |
| **Short-circuit protection** | | | | | | |
| Version of the fuse link required for short-circuit protection of the auxiliary switch | A | -- | | | | Fuse gL/gG: 4 |
| **Conductor cross-sections** | | | | | | |
| **Connection type** (1 or 2 conductors can be connected) | | **Screw terminals** | | | | |
| • Solid | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) | | | | -- |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5) | | | | -- |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) | | | | -- |
| • Terminal screws | | M3 (for standard screwdriver size 2 or Pozidriv 2) | | | | -- |
| • Tightening torque | Nm | 0.8 ... 1.2 | | | | -- |
| **Connection type** (1 or 2 conductors can be connected) | | **Spring-loaded terminals** | | | | |
| • Operating devices | mm | 3.0 x 0.5 | | | | -- |
| • Solid | $mm^2$ | 2 x (0.25 ... 1.5) | | | | -- |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.25 ... 1.5) | | | | -- |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.25 ... 1.5) | | | | -- |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 16) | | | | -- |

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3

### *3RA27 function modules for IO-Link for mounting on 3RT2 contactors*

| Type | | | **3RA2711** |
|---|---|---|---|
| **General data** | | | |
| **Dimensions** | | | See 3RT2 contactors: pages 3/29, 3/32, 3/35 and 3/38 |
| **Suitable for IO-Link masters according to specification** | | | 1.1 |
| **Permissible ambient temperature** | | | |
| • During operation | According to IEC 60947-1 | °C | -25 ... +60 |
| • During storage | According to IEC 60721-3-1 | °C | -40 ... +80 |
| • During transport | According to IEC 60721-3-2 | °C | -40 ... +80 |
| **Operational voltage $U_{Hi}$** | | V DC | 24 ± 20% |
| **Max. length of the cables for the input Y1-Y2** | | m | 30 |
| **Electromagnetic compatibility (EMC)** | | | IEC 61000-6-2, IEC 61000-6-4, IEC 60947-4-1 |
| **Conductor cross-sections** | | | |
| **Connection type** (1 or 2 conductors can be connected) | | | **Screw terminals** |
| • Solid | | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) |
| • Finely stranded with end sleeve (DIN 46228) | | $mm^2$ | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (20 ... 14) |
| • Terminal screws | | | M3 (for standard screwdriver Ø 6 mm or Pozidriv 2) |
| • Tightening torque of the terminal screws | | Nm | 0.8 ... 1.2 |
| **Connection type** (1 or 2 conductors can be connected) | | | **Spring-loaded terminals** |
| • Operating devices | | mm | 3.0 x 0.5 |
| • Solid | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded with end sleeve (DIN 46228) | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded without end sleeve | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (24 ... 16) |

### *3RA27 function modules for AS-Interface for mounting on 3RT2 contactors*

| Type | | | **3RA2712** |
|---|---|---|---|
| **General data** | | | |
| **Dimensions** | | | See 3RT2 contactors: pages 3/29, 3/32, 3/35 and 3/38 |
| **Slave type** | | | A/B slave |
| **Suitable for AS-i masters according to specification** | | | 2.1 or higher |
| **AS-i slave profile IO.ID.ID2** | | | 7.A.E |
| **ID1 code (factory setting)** | | | 7 |
| **Permissible ambient temperature** | | | |
| • During operation | According to IEC 60947-1 | °C | -25 ... +60 |
| • During storage | According to IEC 60721-3-1 | °C | -40 ... +80 |
| • During transport | According to IEC 60721-3-2 | °C | -40 ... +80 |
| **Operational voltage** | | | |
| • AS-Interface | | V | 26.5 ... 31.6 |
| • AUX PWR 24 V DC | | V | 24 ± 20% |
| **Current consumption, max.** | | | |
| • AS-Interface | | mA | 30 |
| • AUX PWR | | | |
| - Maximum pickup/hold current | Size S00 | mA | 200/200 |
| | Size S0 | mA | 300/300 |
| | Size S2 | mA | 1 300/50 |
| | Size S3 | mA | 4 000/70 |
| **Max. length of the cables for the input Y1-Y2** | | m | 30 |
| **Electromagnetic compatibility (EMC)** | | | IEC 61000-6-2, IEC 61000-6-4, IEC 60947-4-1 |
| **Conductor cross-sections** | | | |
| **Connection type** (1 or 2 conductors can be connected) | | | **Screw terminals** |
| • Solid | | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) |
| • Finely stranded with end sleeve (DIN 46228) | | $mm^2$ | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (20 ... 14) |
| • Terminal screws | | | M3 (for standard screwdriver Ø 6 mm or Pozidriv 2) |
| • Tightening torque of the terminal screws | | Nm | 0.8 ... 1.2 |
| **Connection type** (1 or 2 conductors can be connected) | | | **Spring-loaded terminals** |
| • Operating devices | | mm | 3.0 x 0.5 |
| • Solid | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded with end sleeve (DIN 46228) | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded without end sleeve | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (24 ... 16) |

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## Overview

### *Auxiliary switch: Terminal designations and identification numbers for auxiliary contacts*

Terminal designations

The terminal designations are 2-digit, e.g. 13, 14, 21, 22:

- Tens digit: Sequence digit
  - Related terminals have the same sequence digit
- Units digit: Function digit
  - 1-2 for normally closed contacts (NC)
  - 3-4 for normally open contacts (NO)

Identification numbers

The identification number indicates the number and type of the auxiliary contacts, e.g. 40, 31, 22, 13:

- 1st digit: number of normally open contacts (NO)
- 2nd digit: number of normally closed contacts (NC)

Examples:

- 31 = 3 NO + 1 NC
- 40 = 4 NO

### *Selection aid for mountable auxiliary switches for power contactors and contactor relays*

The auxiliary switches of the 3RH29 series for mounting on the front and side can be used for 3RT2 power contactors as well as for 3RH2 contactor relays.

The possible combinations of basic unit and mounted auxiliary switch can be found in the tables, see the following pages.

Where the columns and lines intersect (blue and green in the example) you will find the identification number for the combination of basic unit (column) and auxiliary switch (line).

| Additional auxiliary switch | | | 3-pole contactors | | |
|---|---|---|---|---|---|
| Article number | Auxiliary contacts | | 3RT201 | 3RT201 | 3RT202 to 3RT204 |
| | Version | | S00 | S00 | S0 to S3 |
| | NO | NC | 10 | 01 | 11 |
| | | | 2. 3. 4. 5. | 5. 6. 7. 8. | 3. 4. 5. 6. |
| | | | According to EN 50012[1] | | |
| **Auxiliary switches without NO contact** | | | | | |
| 3RH2911-☐HA01 | -- | 1 | 11 | 02 | 12 |
| 3RH2911-☐HA02 | -- | 2 | 12 | 03 | 13 |
| 3RH2911-☐HA03 | -- | 3 | 13 | 04 | 14 |
| 3RH2911-☐FA04 | -- | 4 | 14 | -- | -- |
| **Auxiliary switch with 1 NO contact** | | | | | |
| 3RH2911-☐HA10 | 1 | -- | 20 | 11 | 21 |

IC01_00716

1 For screw terminals
2 For spring-loaded terminals

[1] Combinations according to EN 50012, EN 50011 and IEC 60947-5-1 are in **bold** print. All combinations comply with EN 50005.

| | *Example 1* | *Example 2* |
|---|---|---|
| Type | 3RT20 motor contactor, S00 with 1 NO | 3RT20 motor contactor, S0 with 1 NO + 1 NC |
| Sequence digit | 2. 3. 4. 5. | 3. 4. 5. 6. |
| Type | Auxiliary switch with 4 NC, 3RH2911-.FA04 | Auxiliary switch with 3 NC, 3RH2911-.HA03 |
| Function digit | 1. 1. 1. 1.<br>2. 2. 2. 2. | 1. 1. 1.<br>2. 2. 2. |
| Combination | 3RT20 motor contactor, S00 with aux. switch | 3RT20 motor contactor, S0 with aux. switch |
| Terminal designation | 13 21 31 41 51<br>14 22 32 42 52 | 13 21 31 41 51<br>14 22 32 42 52 |
| Result | Ident. No. 14 | Ident. No. 14 |

IC01_00717a

Example 1
Basic unit: 3-pole 3RT2017 motor contactor with 1 NO
Required: 1 NO + 4 NC (Ident. No. 14)
Result: 3RH2911-.FA04 auxiliary switch

Example 2
Basic unit: 3-pole 3RT2023 motor contactor with 1 NO + 1 NC
Required: 1 NO + 4 NC (Ident. No. 14)
Result: 3RH2911-.HA03 auxiliary switch

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| Additional auxiliary switches | | | 3-pole contactors | | | 4-pole contactors | | | | Contactor relays | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Article number | Auxiliary contacts | | S00 | | S0 to S3 | S00 | | S0 to S3 | | S00 | | |
| | Version | | 3RT201 | | 3RT202, 3RT203, 3RT204, 3RT244 | 3RT231 | 3RT251 | 3RT232, 3RT233, 3RT234 | 3RT252, 3RT253, 3RT254 | 3RH21, 3RH24 | | |
| | NO | NC | 10 | 01 | 11 | -- | -- | 11 | 11 | 40E | 31E | 22E |
| | | | 13 14 | 21 22 | 13 21 14 22 | | | 13 21 14 22 | 13 21 14 22 | 13 23 33 43 14 24 34 44 | 13 21 33 43 14 22 34 44 | 13 21 31 43 14 22 32 44 |
| | | | 2. 3. 4. 5. | 5. 6. 7. 8. | 3. 4. 5. 6. | 1. 2. 3. 4. | 1. 2. 3. 4. | 3. 4. 5. 6. | 3. 4. 5. 6. | 5. 6. 7. 8. | 5. 6. 7. 8. | 5. 6. 7. 8. |
| | | | According to EN 50012[1] | | | According to EN 50012[1] | | | | According to EN 50011[1] | | |
| **Auxiliary switches, front** | | | | | | | | | | | | |
| ***Without NO contact*** | | | | | | | | | | | | |
| **3RH2911-□HA01** | -- | 1 | **11** | 02 | **12** | 01 | 01 | **12** | **12** | **41X** | **32X** | **23X** |
| **3RH2911-□HA02** | -- | 2 | **12** | 03 | **13** | 02 | 02 | **13** | -- | **42E** | **33X** | 24 |
| **3RH2911-□HA03** | -- | 3 | **13** | 04 | 14 | 03 | -- | -- | -- | 43 | 34 | -- |
| **3RH2911-□FA04** | -- | 4 | 14 | -- | -- | -- | -- | -- | -- | **44E** | -- | -- |
| ***With 1 NO contact*** | | | | | | | | | | | | |
| **3RH2911-□HA10** | 1 | -- | 20 | 11 | **21** | **10** | **10** | **21** | **21** | **50E** | **41E** | **32E** |
| **3RH2911-□HA11** | 1 | 1 | **21** | 12 | **22** | 11 | 11 | **22** | **22** | **51X** | **42X** | **33X** |
| **3RH2911-□HA12** | 1 | 2 | **22** | 13 | **23** | 12 | 12 | **23** | -- | 52 | 43 | 34 |
| **3RH2911-□HA13** | 1 | 3 | **23** | 14 | 24 | 13 | -- | -- | -- | **53X** | **44X** | -- |
| ***With 2 NO contacts*** | | | | | | | | | | | | |
| **3RH2911-□HA20** | 2 | -- | 30 | 21 | **31** | 20 | 20 | **31** | **31** | **60E** | **51X** | **42X** |
| **3RH2911-□HA21** | 2 | 1 | **31** | 22 | **32** | 21 | 21 | **32** | **32** | 61 | 52 | 43 |
| **3RH2911-□HA22** | 2 | 2 | **32** | 23 | 33 | 22 | 22 | 33 | -- | **62X** | 53 | **44X** |
| **3RH2911-□FA22** | 2 | 2 | 32 | 23 | 33 | **22** | **22** | 33 | -- | **62X** | 53 | **44X** |
| ***With 3 NO contacts*** | | | | | | | | | | | | |
| **3RH2911-□HA30** | 3 | -- | 40 | 31 | **41** | 30 | 30 | **41** | **41** | 70 | 61 | 52 |
| **3RH2911-□HA31** | 3 | 1 | **41** | 32 | 42 | 31 | 31 | 42 | 42 | **71X** | **62X** | **53X** |
| ***With 4 NO contacts*** | | | | | | | | | | | | |
| **3RH2911-□FA40** | 4 | -- | 50 | 41 | 51 | 40 | 40 | 51 | 51 | **80E** | **71X** | **62X** |

[1] Combinations according to EN 50012, EN 50011 and IEC 60947-5-1 are in **bold** print. All combinations comply with EN 50005.

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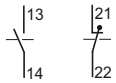
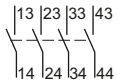
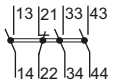
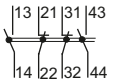
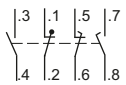
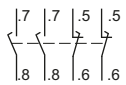
| Additional auxiliary switches | | | 3-pole contactors | | | 4-pole contactors | | | | Contactor relays | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Article number | Auxiliary contacts | | S00 | | S0 to S3 | S00 | | S0 to S3 | | S00 | | |
| | Version | | 3RT201 | | 3RT202, 3RT203, 3RT204, 3RT244 | 3RT231 | 3RT251 | 3RT232, 3RT233, 3RT234 | 3RT252, 3RT253, 3RT254 | 3RH21, 3RH24 | | |
| | NO | NC | S00 | | S0 to S3 | S00 | | S0 to S3 | | 40E | 31E | 22E |
| | | |  | | | | | | |  |  |  |
| | | | 2. 3. 4. 5. | 5. 6. 7. 8. | 3. 4. 5. 6. | 1. 2. 3. 4. | 1. 2. 3. 4. | 3. 4. 5. 6. | 3. 4. 5. 6. | 5. 6. 7. 8. | 5. 6. 7. 8. | 5. 6. 7. 8. |
| | | | According to EN 50005 | | | According to EN 50005 | | | | According to EN 50005 | | |
| **Auxiliary switches, front (continued)** | | | | | | | | | | | | |
| ***With make-before-break*[1)]** | | | | | | | | | | | | |
| **3RH2911-□FB11** | 1 | 1 | | | | 21 | 12 | 22 | 11 | 11 | 22 | 22 | 51 | 42 | 33 |
| **3RH2911-□FB22** | 2 | 2 |  | | | 32 | 23 | 33 | 22 | 22 | 33 | -- | 62 | 53 | 44 |
| **3RH2911-□FC22** | 2 | 2 |  | | | 32 | 23 | 33 | 22 | 22 | 33 | -- | 62 | 53 | 44 |
| ***Complete inscription with terminals from top or bottom*** | | | | | | | | | | | | |
| **3RH2911-1AA10** | 1 | -- | | | | 20 | 11 | 21 | 10 | 10 | 21 | 21 | 50 | 41 | 32 |
| **3RH2911-1BA10** | 1 | -- | | | | 20 | 11 | 21 | 10 | 10 | 21 | 21 | 50 | 41 | 32 |
| **3RH2911-1AA01** | -- | 1 | | | | 11 | 02 | 12 | 01 | 01 | 12 | 12 | 41 | 32 | 23 |
| **3RH2911-1BA01** | -- | 1 | | | | 11 | 02 | 12 | 01 | 01 | 12 | 12 | 41 | 32 | 23 |
| **3RH2911-1LA11** | 1 | 1 | | | | 21 | 12 | 22 | 11 | 11 | 22 | 22 | 51 | 42 | 33 |
| **3RH2911-1MA11** | 1 | 1 | | | | 21 | 12 | 22 | 11 | 11 | 22 | 22 | 51 | 42 | 33 |
| **3RH2911-1LA20** | 2 | -- | | | | 30 | 21 | 31 | 20 | 20 | 31 | 31 | 60 | 51 | 42 |
| **3RH2911-1MA20** | 2 | -- | | | | 30 | 21 | 31 | 20 | 20 | 31 | 31 | 60 | 51 | 42 |

[1)] Contacts with make-before-break have no mirror contact function.

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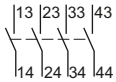
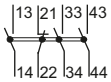
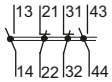
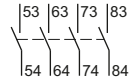
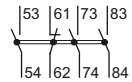
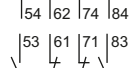
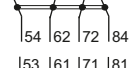
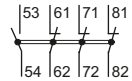
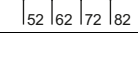
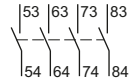
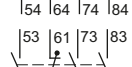
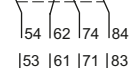
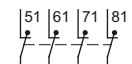
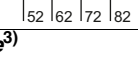
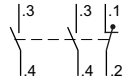
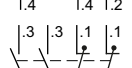
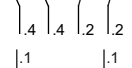
3

| Additional auxiliary switches | | 3-pole contactors | | | 4-pole contactors | | | | Contactor relays | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Article number | Auxiliary contacts | S00 | | S0 to S3 | S00 | | S0 to S3 | | S00 | | |
| | Version | 3RT201 | | 3RT202, 3RT203, 3RT204, 3RT244 | 3RT231 | 3RT251 | 3RT232, 3RT233, 3RT234 | 3RT252, 3RT253, 3RT254 | 3RH21, 3RH24 | | |
| | NO NC | 10 | 01 | 11 | -- | -- | 11 | 11 | 40E | 31E | 22E |
| | | | | | | | | |  |  |  |
| | | 2. 3. 4. 5. | 5. 6. 7. 8. | 3. 4. 5. 6. | 1. 2. 3. 4. | 1. 2. 3. 4. | 3. 4. 5. 6. | 3. 4. 5. 6. | 5. 6. 7. 8. | 5. 6. 7. 8. | 5. 6. 7. 8. |
| | | According to EN 50005 | | | According to EN 50005 | | | | According to EN 50011[1] | | |
| **Auxiliary switches, front (continued)** | | | | | | | | | | | |
| ***With complete inscription (for contactor relays)***[2] | | | | | | | | | | | |
| **3RH2911-□GA40** | 4 -- |  | -- | -- | -- | -- | -- | -- | -- | **80E** | -- | -- |
| **3RH2911-□GA31** | 3 1 |  | -- | -- | -- | -- | -- | -- | -- | **71E** | -- | -- |
| **3RH2911-□GA22** | 2 2 |  | -- | -- | -- | -- | -- | -- | -- | **62E** | -- | -- |
| **3RH2911-□GA13** | 1 3 |  | -- | -- | -- | -- | -- | -- | -- | **53E** | -- | -- |
| **3RH2911-□GA04** | -- 4 |  | -- | -- | -- | -- | -- | -- | -- | **44E** | -- | -- |
| ***Complete inscription*** | | | | | | | | | | | | |
| **3RH2911-□XA40 -0MA0** | 4 -- |  | 50 | 41 | 51 | 40 | 40 | 51 | 51 | **80E** | **71X** | **62X** |
| **3RH2911-□XA31 -0MA0** | 3 1 |  | 41 | 32 | 42 | 31 | 31 | 42 | 42 | **71E** | **62X** | 53 |
| **3RH2911-□XA22 -0MA0** | 2 2 |  | 32 | 23 | 33 | 22 | 22 | 33 | -- | **62E** | 53 | **44X** |
| **3RH2911-□XA04 -0MA0** | -- 4 |  | 14 | -- | -- | -- | -- | -- | -- | **44E** | -- | -- |
| ***Solid-state compatible***[3] | | | | | | | | | | | | |
| **3RH2911-2NE21** | 2[4] 1 |  | 31 | 22 | 32 | 21 | 21 | 32 | 32 | 61 | 52 | 43 |
| **3RH2911-1NE22** | 2[4] 2[4] |  | 32 | 23 | 33 | 22 | 22 | 33 | -- | 62 | 53 | 44 |
| **3RH2911-□NF02** | -- 2 |  | 12 | 03 | 13 | 02 | 02 | 13 | -- | 42 | 33 | 24 |
| **3RH2911-□NF11** | 1 1 |  | 21 | 12 | 22 | 11 | 11 | 22 | 22 | 51 | 42 | 33 |
| **3RH2911-□NF20** | 2 -- |  | 30 | 21 | 31 | 20 | 20 | 31 | 31 | 60 | 51 | 42 |

1) Combinations according to EN 50011 and IEC 60947-5-1 are in **bold** print. All combinations comply with EN 50005.

2) For selection and ordering data, see page 3/89.

3) The internal circuit diagrams shown apply to sizes S00 to S3 (including mirror contacts). If size S00 is used for the contactor relays, the function of the mirror contact is not needed.

4) Of which one auxiliary contact is not solid-state compatible.

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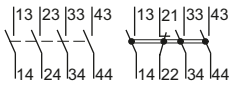
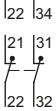
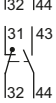
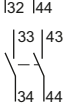
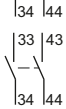
| Additional auxiliary switches | | | 3-pole contactors | | | 4-pole contactors | | | | Contactor relays | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Article number | Auxiliary contacts | | S00 | | S0 to S3 | S00 | | S0 to S3 | | S00 | | |
| | Version | | 3RT201 | | 3RT202, 3RT203, 3RT204, 3RT244 | 3RT231 | 3RT251 | 3RT232, 3RT233, 3RT234 | 3RT252, 3RT253, 3RT254 | 3RH21 | | |
| | NO | NC | 10 | 01 | 11 | -- | -- | 11 | 11 | 40E | 31E | 22E |
| | | | | | | | | | |  | | |
| | | | 2. 3. 4. 5. | 5. 6. 7. 8. | 3. 4. 5. 6. | 1. 2. 3. 4. | 1. 2. 3. 4. | 3. 4. 5. 6. | 3. 4. 5. 6. | 5. 6. 7. 8. | 5. 6. 7. 8. | 5. 6. 7. 8. |
| | | | According to EN 50012[1] | | | According to EN 50012[1] | | | | According to EN 50011[1] | | |
| **Lateral auxiliary switches** | | | | | | | | | | | | |
| ***For size S00*** | | | Left | Right | | | | | | | | |
| **3RH2911-□DA02** | -- | 2 | -- | | **12** | -- | -- | 02 | 02 | -- | -- | -- | -- | -- |
| **3RH2911-□DA02** + **3RH2911-□DA02** | -- | 2 | | | 14 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | -- | 2 | | | | | | | | | | | | |
| **3RH2911-□DA11** | 1 | 1 | -- | | **21** | -- | -- | 11 | 11 | -- | -- | -- | -- | -- |
| **3RH2911-□DA11** + **3RH2911-□DA11** | 1 | 1 | | | 32 | -- | -- | 22 | 22 | -- | -- | -- | -- | -- |
| | 1 | 1 | | | | | | | | | | | | |
| **3RH2911-□DA20** | 2 | -- | -- | | 30 | -- | -- | 20 | 20 | -- | -- | -- | -- | -- |
| **3RH2911-□DA20** + **3RH2911-□DA20** | 2 | -- | | | 50 | -- | -- | 40 | 40 | -- | -- | -- | -- | -- |
| | 2 | -- | | | | | | | | | | | | |
| **3RH2911-□DA20** + **3RH2911-□DA11** | 2 | -- | | | **41** | -- | -- | 31 | 31 | -- | -- | -- | -- | -- |
| | 1 | 1 | | | | | | | | | | | | |
| **3RH2911-□DA20** + **3RH2911-□DA02** | 2 | -- | |  | **32** | -- | -- | 22 | 22 | -- | -- | -- | -- | -- |
| | -- | 2 | | | | | | | | | | | | |
| **3RH2911-□DA11** + **3RH2911-□DA02** | 1 | 1 | | | **23** | -- | -- | 13 | -- | -- | -- | -- | -- | -- |
| | -- | 2 | | | | | | | | | | | | |
| ***For sizes S0 to S3*** | | | Left | Right | | | | | | | | | | |
| **3RH2921-□DA02** | -- | 2 | -- | | 12 | 03 | **13** | 02 | 02 | **13** | -- | -- | -- | -- |
| **3RH2921-□DA02** + **3RH2921-□DA02** | -- | 2 | | | 14 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | -- | 2 | | | | | | | | | | | | |
| **3RH2921-□DA11** | 1 | 1 | -- | | 21 | 12 | **22** | 11 | 11 | **22** | **22** | -- | -- | -- |
| **3RH2921-□DA11** + **3RH2921-□DA11** | 1 | 1 | |  | 32 | 23 | 33 | 22 | 22 | -- | -- | -- | -- | -- |
| | 1 | 1 | | | | | | | | | | | | |
| **3RH2921-□DA20** | 2 | -- | -- |  | 30 | 21 | **31** | 20 | 20 | **31** | **31** | -- | -- | -- |
| **3RH2921-□DA20** + **3RH2921-□DA20** | 2 | -- | |  | 50 | 41 | 51 | 40 | 40 | -- | -- | -- | -- | -- |
| | 2 | -- | | | | | | | | | | | | |

[1] Combinations according to EN 50012, EN 50011 and IEC 60947-5-1 are in **bold** print. All combinations comply with EN 50005.

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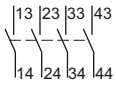
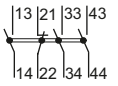
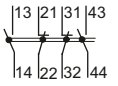
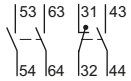
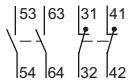
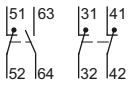
| Additional auxiliary switches | | | 3-pole contactors | | | 4-pole contactors | | | | Contactor relays | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Article number | Auxiliary contacts | | S00 | | S0 to S3 | S00 | | S0 to S3 | | S00 | | |
| | Version | | 3RT201 | | 3RT202, 3RT203, 3RT204, 3RT244 | 3RT231 | 3RT251 | 3RT232, 3RT233, 3RT234 | 3RT252, 3RT253, 3RT254 | 3RH21 | | |
| | NO | NC | 10 | 01 | 11 | -- | -- | 11 | 11 | 40E | 31E | 22E |
| | | | | | | | | | |  |  |  |
| | | | 2. 3. 4. 5. | 5. 6. 7. 8. | 3. 4. 5. 6. | 1. 2. 3. 4. | 1. 2. 3. 4. | 3. 4. 5. 6. | 3. 4. 5. 6. | 5. 6. 7. 8. | 5. 6. 7. 8. | 5. 6. 7. 8. |
| | | | According to EN 50012[1] | | | According to EN 50012[1] | | | | According to EN 50011[1] | | |
| **Lateral auxiliary switches (continued)** | | | | | | | | | | | | |
| ***For sizes S00 to S3*** | | | Left | Right | | | | | | | | |
| **3RH2921-☐DA20** + **3RH2921-☐DA11** | 2 | -- |  | | 41 | 32 | 42 | 31 | 31 | -- | -- | -- | -- | -- |
| | 1 | 1 | | | | | | | | | | | | |
| **3RH2921-☐DA20** + **3RH2921-☐DA02** | 2 | -- |  | | 32 | 23 | 33 | 22 | 22 | -- | -- | -- | -- | -- |
| | -- | 2 | | | | | | | | | | | | |
| **3RH2921-☐DA11** + **3RH2921-☐DA02** | 1 | 1 |  | | 23 | 14 | 24 | 13 | -- | -- | -- | -- | -- | -- |
| | -- | 2 | | | | | | | | | | | | |
| **For contactor relays**[2] | | | Left | | | | | | | | | | | |
| **3RH2921-☐DA02** | -- | 2 | | | -- | -- | -- | -- | -- | -- | -- | -- | **42Z** | **33X** | 24 |
| **3RH2921-☐DA11** | 1 | 1 | | | -- | -- | -- | -- | -- | -- | -- | -- | **51X** | **42X** | **33X** |
| **3RH2921-☐DA20** | 2 | -- | | | -- | -- | -- | -- | -- | -- | -- | -- | **60Z** | **51X** | **42X** |
| ***Solid-state compatible*** | | | | | | | | | | | | | | | |
| **For size S00** | | | Left | Right | | | | | | | | | | | |
| **3RH2911-2DE11** | 1 | 1 | -- | | 21 | -- | -- | 11 | 11 | -- | -- | -- | -- | -- | -- |
| **3RH2911-2DE11** + **3RH2911-2DE11** | 1 | 1 | | | 32 | -- | -- | 22 | 22 | -- | -- | -- | -- | -- | -- |
| | 1 | 1 | | | | | | | | | | | | | |
| **For sizes S00 to S3** | | | Left | Right | | | | | | | | | | | |
| **3RH2921-☐DE11** | 1 | 1 | -- | | 21 | 12 | 22 | 11 | 11 | 22 | 22 | -- | -- | -- | -- |
| **3RH2921-☐DE11** + **3RH2921-☐DE11** | 1 | 1 | | | 32 | 23 | 33 | 22 | 22 | -- | -- | -- | -- | -- | -- |
| | 1 | 1 | | | | | | | | | | | | | |
| **For contactor relays**[2] | | | Left | | | | | | | | | | | | |
| **3RH2921-2DE11** | 1 | 1 | | | -- | -- | -- | -- | -- | -- | -- | -- | **51X** | **42X** | **33X** |

[1] Combinations according to EN 50012, EN 50011 and IEC 60947-5-1 are in **bold** print. All combinations comply with EN 50005.

[2] Without force-guided operation.

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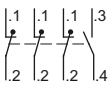
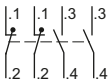
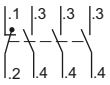
## Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RH2911-1HA22

3RH2911-2HA22

| For contactors/ contactor relays[1] | Auxiliary contacts Version | | | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| | | | | Article No. | Price per PU | Article No. | Price per PU |
| Type | NO | NC | | | | | |
| **Auxiliary switches for snapping onto the front** | | | | | | | |
| ***Sizes S00 to S3*** | | | | | | | |
| 3RT2.1, 3RT2.2, 3RT2.3, 3RT2.4, 3RH21, 3RH24 | -- | 1 | | **3RH2911-1HA01** | | **3RH2911-2HA01** | |
| | -- | 2 | | **3RH2911-1HA02** | | **3RH2911-2HA02** | |
| | -- | 3 | | **3RH2911-1HA03** | | **3RH2911-2HA03** | |
| | 1 | -- | | **3RH2911-1HA10** | | **3RH2911-2HA10** | |
| | 1 | 1 | | **3RH2911-1HA11** | | **3RH2911-2HA11** | |
| | 1 | 2 | | **3RH2911-1HA12** | | **3RH2911-2HA12** | |
| | 1 | 3 |  | **3RH2911-1HA13** | | **3RH2911-2HA13** | |
| | 2 | -- | | **3RH2911-1HA20** | | **3RH2911-2HA20** | |
| | 2 | 1 | | **3RH2911-1HA21** | | **3RH2911-2HA21** | |
| | 2 | 2 |  | **3RH2911-1HA22** | | **3RH2911-2HA22** | |
| | 3 | -- | | **3RH2911-1HA30** | | **3RH2911-2HA30** | |
| | 3 | 1 |  | **3RH2911-1HA31** | | **3RH2911-2HA31** | |

[1] For detailed information on use, see page 3/82.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories for SIRIUS 3RT contactors and SIRIUS 3RH2 contactor relays > Auxiliary switches, instantaneous

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RH2911-1FC22

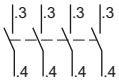
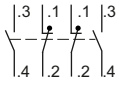
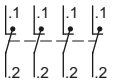
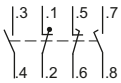
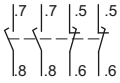
3RH2911-2FC22

3RH2911-1AA01

3RH2911-1BA01

3RH2911-1LA11

3RH2911-1MA11

| For contactors/ contactor relays[1] | Connections Position | Auxiliary contacts Version | | | | | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| Type | | NO | NC | NO | NC | | Article No. | Price per PU | Article No. | Price per PU |
| **Auxiliary switches for snapping onto the front** | | | | | | | | | | |
| ***Sizes S00 to S3*** | | | | | | | | | | |
| 3RT2.1, 3RT2.2, 3RT2.3, 3RT2.4, 3RH21, 3RH24 | -- | 4 | -- | -- | -- |  | **3RH2911-1FA40** | | **3RH2911-2FA40** | |
| | -- | 2 | 2 | -- | -- |  | **3RH2911-1FA22** | | **3RH2911-2FA22** | |
| | -- | -- | 4 | -- | -- |  | **3RH2911-1FA04** | | **3RH2911-2FA04** | |
| | -- | -- | -- | 1 | 1 | | **3RH2911-1FB11** | | **3RH2911-2FB11** | |
| | -- | 1 | 1 | 1 | 1 |  | **3RH2911-1FB22** | | **3RH2911-2FB22** | |
| | -- | -- | -- | 2 | 2 |  | **3RH2911-1FC22** | | **3RH2911-2FC22** | |
| **1-pole and 2-pole auxiliary switches, cable entry from top or bottom** | | | | | | | | | | |
| 3RT2.1, 3RT2.2, 3RT2.3, 3RT2.4, 3RH21, 3RH24 | Top | 1 | -- | -- | -- | | **3RH2911-1AA10** | | **--** | |
| | Bottom | 1 | -- | -- | -- | | **3RH2911-1BA10** | | **--** | |
| | Top | -- | 1 | -- | -- | | **3RH2911-1AA01** | | **--** | |
| | Bottom | -- | 1 | -- | -- | | **3RH2911-1BA01** | | **--** | |
| | Top | 1 | 1 | -- | -- | | **3RH2911-1LA11** | | **--** | |
| | Bottom | 1 | 1 | -- | -- | | **3RH2911-1MA11** | | **--** | |
| | Top | 2 | -- | -- | -- | | **3RH2911-1LA20** | | **--** | |
| | Bottom | 2 | -- | -- | -- | | **3RH2911-1MA20** | | **--** | |

[1] For detailed information on use, see pages 3/82 and 3/83.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RH2911-1GA22

3RH2911-2GA22

| For contactor relays[1] | Contactor relay with auxiliary switch<br>Ident. No. | Auxiliary contacts<br>Version<br>NO | NC | Screw terminals<br>Article No. | Price per PU | Spring-loaded terminals<br>Article No. | Price per PU |
|---|---|---|---|---|---|---|---|
| **Auxiliary switches for snapping onto the front** | | | | | | | |
| ***Size S00*** | | | | | | | |
| **Blocks for the assembly of contactor relays with 8 contacts** | | | | | | | |
| 3RH2140, 3RH2440, Ident. No. 40E | **80E** | 4 | -- | **3RH2911-1GA40** | | **3RH2911-2GA40** | |
| | **71E** | 3 | 1 | **3RH2911-1GA31** | | **3RH2911-2GA31** | |
| | **62E** | 2 | 2 | **3RH2911-1GA22** | | **3RH2911-2GA22** | |
| | **53E** | 1 | 3 | **3RH2911-1GA13** | | **3RH2911-2GA13** | |
| | **44E** | -- | 4 | **3RH2911-1GA04** | | **3RH2911-2GA04** | |

[1] For detailed information on use, see page 3/84.

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RH2911-1XA22-0MA0

3RH2911-2XA22-0MA0

| For contactors/ contactor relays[1] | Auxiliary contacts<br>Version<br>NO | NC | Screw terminals<br>Article No. | Price per PU | Spring-loaded terminals<br>Article No. | Price per PU |
|---|---|---|---|---|---|---|
| **Auxiliary switches for snapping onto the front** | | | | | | |
| ***Sizes S00 to S3*** | | | S00 | S0 ... S3 | | |
| 3RT2.1, 3RT2.2, 3RT2.3, 3RT2.4, 3RH21[2], 3RH24[2] | 4 | -- | **3RH2911-1XA40-0MA0** | | **3RH2911-2XA40-0MA0** | |
| | 3 | 1 | **3RH2911-1XA31-0MA0** | | **3RH2911-2XA31-0MA0** | |
| | 2 | 2 | **3RH2911-1XA22-0MA0** | | **3RH2911-2XA22-0MA0** | |
| | -- | 4 | **3RH2911-1XA04-0MA0** | | **3RH2911-2XA04-0MA0** | |

[1] For detailed information on use, see page 3/84.

[2] For size S00, positively driven operation only applies for the 3RH contactor relay, and there is no positively driven operation for 3RT2 power contactors.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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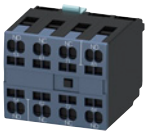
3

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RH1921-1XA22-0MA0

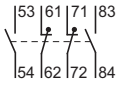

3RH1921-2XA22-0MA0

3RH1921-1CA10

3RH1921-1CD10

3RH1921-2CA10

3RH1921-2CA01

| For contactors | Auxiliary contacts | | | | | | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ident. No. | Version | | | | | Article No. | Price per PU | Article No. | Price per PU |
| Type | | NO | NC | NO | NC | | | | | |
| **Auxiliary switches for snapping onto the front** | | | | | | | | | | |
| ***Sizes S6 to S12*** | | | | | | | | | | |
| | **4-pole auxiliary switches** | | | | | | | | | |
| | **• According to EN 50012** | | | | | | | | | |
| 3RT1.5 ... 3RT1.7 | **22** | 2 | 2 | -- | -- |  | **3RH1921-1XA22-0MA0** | | **3RH1921-2XA22-0MA0** | |
| | **1-pole auxiliary switches** | | | | | | | | | |
| | **• According to EN 50005 and EN 50012** | | | | | | | | | |
| 3RT1.5 ... 3RT1.7 | **10** | 1 | -- | -- | -- | | **3RH1921-1CA10** | | **3RH1921-2CA10** | |
| | **01** | -- | 1 | -- | -- | | **3RH1921-1CA01** | | **3RH1921-2CA01** | |
| | **10** | -- | -- | 1 (leading) | -- | | **3RH1921-1CD10** | | **--** | |
| | **01** | -- | -- | -- | 1 (lagging) | | **3RH1921-1CD01** | | **--** | |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RH2911-1DA02

3RH2911-2DA02

| For contactors/ contactor relays[1] | Auxiliary contacts Version | | | | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | Article No. | Price per PU |
| Type | NO | NC | | | | | | |
| **Laterally mountable auxiliary switches, mounting on the right and/or the left, 2-pole** | | | | | | | | |
| ***Size S00*** | | | Left | Right | | | | |
| 3RT2.1 | -- | 2 | | | **3RH2911-1DA02** | | **3RH2911-2DA02** | |
| | 1 | 1 | | | **3RH2911-1DA11** | | **3RH2911-2DA11** | |
| | 2 | -- | | | **3RH2911-1DA20** | | **3RH2911-2DA20** | |
| 3RH21, 3RH24 | -- | 2 | | -- | **3RH2921-1DA02** | | **3RH2921-2DA02** | |
| | 1 | 1 | | -- | **3RH2921-1DA11** | | **3RH2921-2DA11** | |
| | 2 | -- | | -- | **3RH2921-1DA20** | | **3RH2921-2DA20** | |
| ***Sizes S0 to S3*** | | | Left | Right | | | | |
| 3RT2.2[2], 3RT2.3[3], 3RT2.4[3] | -- | 2 | | | **3RH2921-1DA02** | | **3RH2921-2DA02** | |
| | 1 | 1 | | | **3RH2921-1DA11** | | **3RH2921-2DA11** | |
| | 2 | -- | | | **3RH2921-1DA20** | | **3RH2921-2DA20** | |

[1] For detailed information on use, see pages 3/85 and 3/86.

[2] With 3RT232. and 3RT252. contactors, mountable only on the right.

[3] 3RH2921-1DA.. lateral auxiliary switches can only be mounted on 3RT26 capacitor contactors of sizes S2 and S3.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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3

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

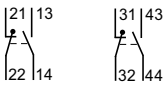
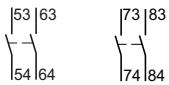
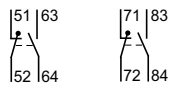
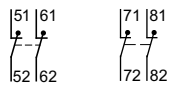
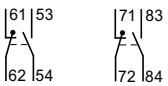
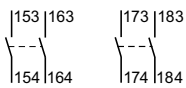
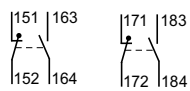
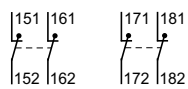
3RH1921-1DA11

3RH1921-1JA11

3RH1921-1EA02

3RH1921-1KA02

3RH1921-2DA11

| For contactors | Auxiliary contacts Version | | | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| | | | | Article No. | Price per PU | Article No. | Price per PU |
| Type | NO | NC | | | | | |
| **Lateral auxiliary switches, mounting on the right or left, 2-pole** | | | | | | | |
| ***Sizes S6 to S12*** | | | Left | Right | | | |
| | **First auxiliary switch** | | | | | | |
| | **• According to EN 50012** | | | | | | |
| 3RT1.5 ... 3RT1.7 | 1 | 1 |  |  | **3RH1921-1DA11** | **3RH1921-2DA11** |
| | **• According to EN 50005** | | | | | | |
| 3RT1.5 ... 3RT1.7 | 2 | -- |  |  | **3RH1921-1EA20** | **3RH1921-2EA20** |
| | 1 | 1 |  |  | **3RH1921-1EA11** | **--** |
| | -- | 2 |  |  | **3RH1921-1EA02** | **3RH1921-2EA02** |
| | **Second auxiliary switch** | | | | | | |
| | **• According to EN 50012** | | | | | | |
| 3RT1.5 ... 3RT1.7 | 1 | 1 |  |  | **3RH1921-1JA11** | **3RH1921-2JA11** |
| | **• According to EN 50005** | | | | | | |
| 3RT1.5 ... 3RT1.7 | 2 | -- |  |  | **3RH1921-1KA20** | **3RH1921-2KA20** |
| | 1 | 1 |  |  | **3RH1921-1KA11** | **--** |
| | -- | 2 |  |  | **3RH1921-1KA02** | **3RH1921-2KA02** |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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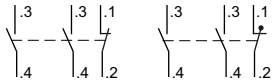
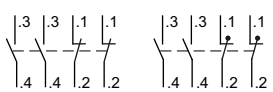
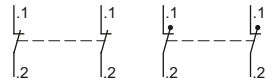
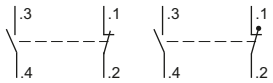
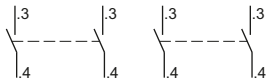
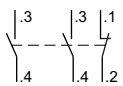
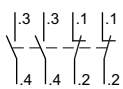
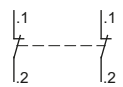
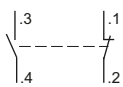
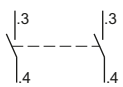
PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RH2911-1NF..

3RH2911-2NF..

| For contactors/ contactor relays[1] | Size | Contacts Version | | | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | Article No. | Price per PU |
| Type | | NO | NC | | | | | |
| **Auxiliary switches for snapping onto the front** | | | | | | | | |
| **Solid-state compatible auxiliary switches, 2-pole** | | | | | | | | |
| • For operation in dusty atmospheres<br>• For solid-state circuits with rated operational currents $I_e$/AC-14 and DC-13 from 1 to 300 mA at 3 to 60 V<br>• Hard gold-plated contacts<br>• Auxiliary switches for snapping onto the front for 3RT2.2 to 3RT2.4 contactors are designed as mirror contacts according to IEC 60947-4-1, Annex F. | | | | | | | | |
| ***Sizes S00 to S3*** | | | | S00 / S0 ... S3 | | | | |
| 3RT2.1, 3RT2.2, 3RT2.3, 3RT2.4 | **S00 ... S3** | 2[2] | 1 |  | NEW | -- | | **3RH2911-2NE21** |
| | | 2[2] | 2[2] |  | NEW | **3RH2911-1NE22** | | -- |
| | | -- | 2 |  | | **3RH2911-1NF02** | | **3RH2911-2NF02** |
| | | 1 | 1 |  | | **3RH2911-1NF11** | | **3RH2911-2NF11** |
| | | 2 | -- |  | | **3RH2911-1NF20** | | **3RH2911-2NF20** |
| 3RH21, 3RH24 | **S00** | 2[2] | 1 |  | NEW | -- | | **3RH2911-2NE21** |
| | | 2[2] | 2[2] |  | NEW | **3RH2911-1NE22** | | -- |
| | | -- | 2 |  | | **3RH2911-1NF02** | | **3RH2911-2NF02** |
| | | 1 | 1 |  | | **3RH2911-1NF11** | | **3RH2911-2NF11** |
| | | 2 | -- |  | | **3RH2911-1NF20** | | **3RH2911-2NF20** |

[1] For detailed information on use, see page 3/84.
[2] Of which one auxiliary contact is not solid-state compatible.

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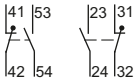
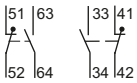
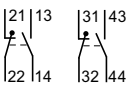
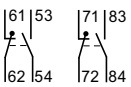
3

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RH2911-2DE11

3RH1921-2JE11

| For contactors/ contactor relays[1] | Size | Contacts Version | | | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | Article No. | Price per PU |
| Type | | NO | NC | | | | | |
| **Lateral auxiliary switches, mounting on the right and/or the left, according to EN 50012** | | | | | | | | |
| **Solid-state compatible auxiliary switches, 2-pole** | | | | | | | | |
| • For operation in dusty atmospheres<br>• For solid-state circuits with rated operational currents $I_e$/AC-14 and DC-13 from 1 to 300 mA at 3 to 60 V<br>• Hard gold-plated contacts<br>• Laterally mountable auxiliary switches for 3RT2.1 to 3RT2.4 and 3RT1.5 to 3RT1.7 contactors are designed as mirror contacts according to IEC 60947-4-1, Annex F. | | | | | | | | |
| ***Sizes S00 to S3*** | | | | Left / Right | | | | |
| | | **Auxiliary switches** | | | | | | |
| 3RT2.1 | **S00** | 1 | 1 |  | -- | | **3RH2911-2DE11** | |
| 3RH21, 3RH24 | **S00** | 1 | 1 | | -- | | **3RH2921-2DE11** | |
| 3RT2.2, 3RT2.3, 3RT2.4 | **S0 ... S3** | 1 | 1 |  | -- | | **3RH2921-2DE11** | |
| ***Sizes S6 to S12*** | | | | Left / Right | | | | |
| | | **First auxiliary switch** | | | | | | |
| 3RT1.5 ... 3RT1.7 | **S6 ... S12** | 1 | 1 |  | -- | | **3RH1921-2DE11** | |
| | | **Second auxiliary switch** | | | | | | |
| 3RT1.5 ... 3RT1.7 | **S6 ... S12** | 1 | 1 |  | -- | | **3RH1921-2JE11** | |

[1] Applies to 3RT2 and 3RH2 contactors: For detailed information on use, see page 3/86.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

| For contactors | Time setting range *t* | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| Type | s | Article No. | Price per PU | | | |
| **Pneumatic time-delay auxiliary switches for mounting on 3RT2 contactors** | | | | | | |
| ***Size S0*** | | | | | | |
| **Auxiliary contacts 1 NO and 1 NC[1]** | | | | | | |
| **ON-delay** | | | | | | |
| 3RT202[2] | 1 ... 30 | **3RT2927-2PA01** | | 1 | 1 unit | 41B |
| | 10 ... 180 | **3RT2927-2PA11** | | 1 | 1 unit | 41B |
| **OFF-delay** | | | | | | |
| 3RT202[2] | 1 ... 30 | **3RT2927-2PR01** | | 1 | 1 unit | 41B |
| | 10 ... 180 | **3RT2927-2PR11** | | 1 | 1 unit | 41B |

3RT2927-2P..1

1) In addition to these, no other auxiliary contacts are permitted.
2) Cannot be fitted onto coupling contactors and coupling contactor relays.

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RA2813-1FW10

3RA2813-2AW10

| For contactors | Rated control supply voltage $U_s$[1] | Time setting range *t* | Output/ auxiliary contacts | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| Type | V | s | | Article No. | Price per PU | Article No. | Price per PU |
| **Solid-state time-delay auxiliary switches[2] for mounting on 3RT2 contactors and 3RH2 contactor relays** | | | | | | | |
| ***Sizes S00 to S3*** | | | | | | | |
| | The electrical connection between the solid-state time-delay auxiliary switch and the contactor or contactor relay underneath is established automatically when it is snapped on and locked. | | | | | | |
| | **ON-delay** (varistor integrated) | | | | | | |
| 3RT2[3][4], 3RH21[3], 3RH24 | 24 ... 240 AC/DC | 0.05 ... 100 (1, 10, 100; selectable) | 1 CO | **3RA2813-1AW10** | | **3RA2813-2AW10** | |
| | | | 1 NO + 1 NC | **3RA2813-1FW10** | | **3RA2813-2FW10** | |
| | **OFF-delay with control signal** (varistor integrated) | | | | | | |
| 3RT2[3][4], 3RH21[3], 3RH24 | 24 ... 240 AC/DC | 0.05 ... 100 (1, 10, 100; selectable) | 1 CO | **3RA2814-1AW10** | | **3RA2814-2AW10** | |
| | | | 1 NO + 1 NC | **3RA2814-1FW10** | | **3RA2814-2FW10** | |
| | **OFF-delay without control signal[5]** (varistor integrated) | | | | | | |
| 3RT2[3][4], 3RH21[3], 3RH24 | 24 ... 240 AC/DC | 0.05 ... 100 (1, 10, 100; selectable) | 1 CO | **3RA2815-1AW10** | | **3RA2815-2AW10** | |
| | | | 1 NO + 1 NC | **3RA2815-1FW10** | | **3RA2815-2FW10** | |

1) AC voltage values apply for 50 Hz and 60 Hz.
2) The solid-state time-delay auxiliary switches are also available as 3RA28 function modules for mounting on 3RT2 contactors and 3RH2 contactor relays, see page 3/100.
3) Cannot be fitted onto coupling contactors and coupling contactor relays.
4) From product version E04 onwards, 3RA281. solid-state time-delay auxiliary switches can be used for 3RT2.4 contactors.
5) Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control supply voltage once results in contact changeover to the correct setting.

Technical specifications, see page 3/76.

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| For contactors | Auxiliary contacts | Rated control supply voltage $U_s$[1] | Time setting range *t* | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| Type | | V | s | | | | | |
| **Solid-state time-delay auxiliary switches for mounting on 3RT1 contactors** | | | | | | | | |
| ***Sizes S6 to S12*** | | | | | | | | |
| | **ON-delay**[2] | | | | | | | |
| 3RT10, 3RT14 | 1 NO + 1 NC | 24 AC/DC | 0.05 ... 1 | **3RT1926-2EJ11** | | 1 | 1 unit | 41H |
| | | | 0.5 ... 10 | **3RT1926-2EJ21** | | 1 | 1 unit | 41H |
| | | | 5 ... 100 | **3RT1926-2EJ31** | | 1 | 1 unit | 41H |
| | | 100 ... 127 AC | 0.05 ... 1 | **3RT1926-2EC11** | | 1 | 1 unit | 41H |
| | | | 0.5 ... 10 | **3RT1926-2EC21** | | 1 | 1 unit | 41H |
| | | | 5 ... 100 | **3RT1926-2EC31** | | 1 | 1 unit | 41H |
| | | 200 ... 240 AC | 0.05 ... 1 | **3RT1926-2ED11** | | 1 | 1 unit | 41H |
| | | | 0.5 ... 10 | **3RT1926-2ED21** | | 1 | 1 unit | 41H |
| | | | 5 ... 100 | **3RT1926-2ED31** | | 1 | 1 unit | 41H |
| | **OFF-delay without control signal**[2][3] | | | | | | | |
| 3RT10, 3RT14 | 1 NO + 1 NC | 24 AC/DC | 0.05 ... 1 | **3RT1926-2FJ11** | | 1 | 1 unit | 41H |
| | | | 0.5 ... 10 | **3RT1926-2FJ21** | | 1 | 1 unit | 41H |
| | | | 5 ... 100 | **3RT1926-2FJ31** | | 1 | 1 unit | 41H |
| | | 100 ... 127 AC/DC | 0.05 ... 1 | **3RT1926-2FK11** | | 1 | 1 unit | 41H |
| | | | 0.5 ... 10 | **3RT1926-2FK21** | | 1 | 1 unit | 41H |
| | | | 5 ... 100 | **3RT1926-2FK31** | | 1 | 1 unit | 41H |
| | | 200 ... 240 AC/DC | 0.05 ... 1 | **3RT1926-2FL11** | | 1 | 1 unit | 41H |
| | | | 0.5 ... 10 | **3RT1926-2FL21** | | 1 | 1 unit | 41H |
| | | | 5 ... 100 | **3RT1926-2FL31** | | 1 | 1 unit | 41H |
| | **Star-delta (wye-delta) starting (varistor integrated)**[2] | | | | | | | |
| 3RT10, 3RT14 | 1 NO delayed + 1 NO instantaneous, dead time 50 ms | 24 AC/DC | 1.5 ... 30 | **3RT1926-2GJ51** | | 1 | 1 unit | 41H |
| | | 100 ... 127 AC | 1.5 ... 30 | **3RT1926-2GC51** | | 1 | 1 unit | 41H |
| | | 200 ... 240 AC | 1.5 ... 30 | **3RT1926-2GD51** | | 1 | 1 unit | 41H |

3RT1926-2E..1,
3RT1926-2F..1

3RT1926-2G.51

1) AC voltage values apply for 50 and 60 Hz.

2) Connecting terminals A1 and A2 for the control supply voltage of the solid-state time-delay auxiliary switch must be connected to the associated contactor by means of cables.

3) Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control supply voltage once results in contact changeover to the correct setting.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

| For contactors | Version | Rated control supply voltage $U_s$ [1] AC operation | Rated control supply voltage $U_s$ [1] DC operation | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| Type | | V AC | V DC | | | | | |
| **Surge suppressors without LED (also for spring-loaded terminals)** | | | | | | | | |
| | ***Size S00*** | | | | | | | |
| 3RT2916-1B.00 | **For plugging onto the front of the contactors (with or without auxiliary switches)** | | | | | | | |
| 3RT2.1, 3RH2 | **Varistors** | 24 ... 48 | 24 ... 70 | **3RT2916-1BB00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 70 ... 150 | **3RT2916-1BC00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2916-1BD00** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT2916-1BE00** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT2916-1BF00** | | 1 | 1 unit | 41B |
| 3RT2.1, 3RH2 | **RC elements** | 24 ... 48 | 24 ... 70 | **3RT2916-1CB00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 70 ... 150 | **3RT2916-1CC00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2916-1CD00** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT2916-1CE00** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT2916-1CF00** | | 1 | 1 unit | 41B |
| 3RT2.1, 3RH2 | **Interference suppression diode** | -- | 12 ... 250 | **3RT2916-1DG00** | | 1 | 1 unit | 41B |
| 3RT2.1, 3RH2 | **Diode assemblies** (diode and Zener diode) for DC operation | -- | 12 ... 250 | **3RT2916-1EH00** | | 1 | 1 unit | 41B |
| | ***Size S0*** | | | | | | | |
| 3RT2926-1E.00 | **For plugging into the front of the contactors (before mounting the auxiliary switch)** | | | | | | | |
| 3RT2.2 | **Varistors** [2] | 24 ... 48 | 24 ... 70 | **3RT2926-1BB00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 70 ... 150 | **3RT2926-1BC00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2926-1BD00** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT2926-1BE00** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT2926-1BF00** | | 1 | 1 unit | 41B |
| 3RT2.2 | **RC elements** | 24 ... 48 | 24 ... 70 | **3RT2926-1CB00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 70 ... 150 | **3RT2926-1CC00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2926-1CD00** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT2926-1CE00** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT2926-1CF00** | | 1 | 1 unit | 41B |
| 3RT2.2 | **Diode assemblies** for DC operation | -- | 24 | **3RT2926-1ER00** | | 1 | 1 unit | 41B |
| | | -- | 30 ... 250 | **3RT2926-1ES00** | | 1 | 1 unit | 41B |
| | ***Size S2*** | | | | | | | |
| 3RT2936-1BF00 | **For plugging into the front of the contactors (before mounting the auxiliary switch)** | | | | | | | |
| 3RT2.3 | **Varistors** [2] | 24 ... 48 | -- | **3RT2936-1BB00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | -- | **3RT2936-1BC00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | -- | **3RT2936-1BD00** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT2936-1BE00** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT2936-1BF00** | | 1 | 1 unit | 41B |
| 3RT2.3 | **RC elements** | 24 ... 48 | 24 ... 70 | **3RT2936-1CB00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 70 ... 150 | **3RT2936-1CC00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2936-1CD00** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT2936-1CE00** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT2936-1CF00** | | 1 | 1 unit | 41B |
| 3RT2.3 | **Diode assemblies** for DC operation | -- | 24 | **3RT2936-1ER00** | | 1 | 1 unit | 41B |
| | | -- | 30 ... 250 | **3RT2936-1ES00** | | 1 | 1 unit | 41B |
| | ***Size S3*** | | | | | | | |
| 3RT2936-1ER00 | **For plugging into the front of the contactors (before mounting the auxiliary switch)** | | | | | | | |
| 3RT2.4 | **Varistors** [2] | 24 ... 48 | -- | **3RT2936-1BB00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | -- | **3RT2936-1BC00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | -- | **3RT2936-1BD00** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT2936-1BE00** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT2936-1BF00** | | 1 | 1 unit | 41B |
| 3RT2.4 | **Diode assemblies** for DC operation | -- | 24 | **3RT2936-1ER00** | | 1 | 1 unit | 41B |
| | | -- | 30 ... 250 | **3RT2936-1ES00** | | 1 | 1 unit | 41B |
| 3RT2946-1C.00 | **For plugging into the two recesses on the left next to the connection block for auxiliary switches and coils A1 and A2, the connecting cables are wired to A1 and A2** **(see also overview graphic on page 3/11)** | | | | | | | |
| 3RT2.4 | **RC elements** | 24 ... 48 | 24 ... 70 | **3RT2946-1CB00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 70 ... 150 | **3RT2946-1CC00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2946-1CD00** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT2946-1CE00** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT2946-1CF00** | | 1 | 1 unit | 41B |

[1] Can be used for AC operation for 50/60 Hz. Other voltages on request.

[2] The varistor is already integrated on the AC/DC contactors.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| For contactors | Version | Rated control supply voltage $U_s$ [1] AC operation | Rated control supply voltage $U_s$ [1] DC operation | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| Type | | V AC | V DC | | | | | |
| **Surge suppressors without LED** | | | | | | | | |
| ***Sizes S6 to S12*** | | | | | | | | |
| | **For connecting to withdrawable coil for contactors with<br>• Standard operating mechanisms 3RT1...-.A...<br>• Solid-state operating mechanisms 3RT1...-.N...** | | | **Screw terminals** | | | | |
| 3RT1.5 ...<br>3RT1.7 | **RC elements** | 24 ... 48 | 24 ... 70 | **3RT1956-1CB00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 70 ... 150 | **3RT1956-1CC00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT1956-1CD00** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT1956-1CE00** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT1956-1CF00** | | 1 | 1 unit | 41B |
| | | | | **Spring-loaded terminals** | | | | |
| 3RT1.5 ...<br>3RT1.7 | **RC elements** | 24 ... 48 | 24 ... 70 | **3RT1956-1CB02** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 70 ... 150 | **3RT1956-1CC02** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT1956-1CD02** | | 1 | 1 unit | 41B |
| | | 240 ... 400 | -- | **3RT1956-1CE02** | | 1 | 1 unit | 41B |
| | | 400 ... 600 | -- | **3RT1956-1CF02** | | 1 | 1 unit | 41B |

3RT1956-1C.00

3RT1956-1C.02

[1] Can be used for AC operation for 50/60 Hz. Other voltages on request.

| For contactors | Version | Rated control supply voltage $U_s$ [1] AC operation | Rated control supply voltage $U_s$ [1] DC operation | Power consumption $P$ of LED at $U_s$ | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| Type | | V AC | V DC | mW | | | | | |
| **Surge suppressors with LED (also for spring-loaded terminals)** | | | | | | | | | |
| ***Size S00*** | | | | | | | | | |
| | **For plugging onto the front of the contactors (with or without auxiliary switches)** | | | | | | | | |
| 3RT2.1,<br>3RH2 | **Varistors** | 24 ... 48 | 12 ... 24 | 10 ... 120 | **3RT2916-1JJ00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 24 ... 70 | 20 ... 470 | **3RT2916-1JK00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 70 ... 150 | 50 ... 700 | **3RT2916-1JL00** | | 1 | 1 unit | 41B |
| | | -- | 150 ... 250 | 160 ... 950 | **3RT2916-1JP00** | | 1 | 1 unit | 41B |
| 3RT2.1,<br>3RH2 | **Interference suppression diodes** | -- | 24 ... 70 | 20 ... 470 | **3RT2916-1LM00** | | 1 | 1 unit | 41B |
| | | -- | 50 ... 150 | 50 ... 700 | **3RT2916-1LN00** | | 1 | 1 unit | 41B |
| | | -- | 150 ... 250 | 160 ... 950 | **3RT2916-1LP00** | | 1 | 1 unit | 41B |
| ***Size S0*** | | | | | | | | | |
| | **For plugging into the front of the contactors (before mounting the auxiliary switch)** | | | | | | | | |
| 3RT2.2 | **Varistors** | 24 ... 48 | 12 ... 24 | 10 ... 120 | **3RT2926-1JJ00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 24 ... 70 | 20 ... 470 | **3RT2926-1JK00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 70 ... 150 | 50 ... 700 | **3RT2926-1JL00** | | 1 | 1 unit | 41B |
| 3RT2.2 | **Diode assemblies** | -- | 24 | 20 ... 470 | **3RT2926-1MR00** | | 1 | 1 unit | 41B |
| ***Sizes S2 and S3*** | | | | | | | | | |
| | **For plugging into the front of the contactors (before mounting the auxiliary switch)** | | | | | | | | |
| 3RT2.3,<br>3RT2.4 | **Varistors** | 24 ... 48 | 12 ... 24 | 10 ... 120 | **3RT2936-1JJ00** | | 1 | 1 unit | 41B |
| | | 48 ... 127 | 24 ... 70 | 20 ... 470 | **3RT2936-1JK00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 70 ... 150 | 50 ... 700 | **3RT2936-1JL00** | | 1 | 1 unit | 41B |

3RT2916-1J.00

3RT2926-1MR00

3RT2936-1JJ00

[1] Can be used for AC operation for 50/60 Hz. Other voltages on request.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

| For contactors Type | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Coupling links for control by PLC** | | | | | | |
| | | **Screw terminals** | | | | |
| ***Size S0*** | | | | | | |
| | **For mounting on the coil terminals of the contactors (for contactors with screw terminals only)** With LED for the switching state and with integrated varistor for damping switching overvoltages | | | | | |
| 3RT2.2 | • 24 V DC control, 17 ... 30 V DC operating range | **3RH2924-1GP11** | | 1 | 1 unit | 41B |
| ***Sizes S00 to S3*** | | | | | | |
| | **For mounting on the front of contactors with AC, DC or AC/DC operation** | | | | | |
| 3RT2.1, 3RT2.2, 3RT2.3, 3RT2.4 3RH2 | • 24 V DC control, 17 ... 30 V DC operating range | **3RH2914-1GP11** | | 1 | 1 unit | 41B |
| | | **Spring-loaded terminals** | | | | |
| 3RT2.1, 3RT2.2, 3RT2.3, 3RT2.4 3RH2 | • 24 V DC control, 17 ... 30 V DC operating range | **3RH2914-2GP11** | | 1 | 1 unit | 41B |

3RH2924-1GP11

3RH2914-1GP11

3RH2914-2GP11

Technical specifications, see page 3/78.

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3

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

**More information**

Equipment Manual for 3RA28 function modules, see https://support.industry.siemens.com/cs/ww/en/view/60279150

3RA2811-2CW10

3RA2812-1DW10

3RA2816-0EW20

| For contactors | Size | Version | Rated control supply voltage $U_s$ [1] | Time setting range $t$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| Type | | | V AC/DC | s | Article No. | Price per PU | Article No. | Price per PU |
| **3RA28 function modules for mounting on 3RT2 contactors and 3RH2 contactor relays** | | | | | | | | |
| ***For direct-on-line starting*** | | | | | | | | |
| 3RT2.1[2], 3RT2.2[2], 3RH21[2], 3RH24 | S00, S0 | **ON-delay two-wire design, varistor integrated** The electrical connection between the function module and the contactor underneath is established automatically when it is snapped on and locked. | 24 ... 240 | 0.05 ... 100 (1, 10, 100; selectable) | **3RA2811-1CW10** | | **3RA2811-2CW10** | |
| 3RT2.3[2] 3RT2.4[2][3] | S2, S3 | | 24 ... 90<br>90 ... 240 | 0.05 ... 100 (1, 10, 100; selectable) | **3RA2831-1DG10**<br>**3RA2831-1DH10** | | **3RA2831-2DG10**<br>**3RA2831-2DH10** | |
| 3RT2.1[2], 3RT2.2[2], 3RH21[2], 3RH24 | S00, S0 | **OFF-delay with control signal, varistor integrated** The electrical connection between the function module and the contactor underneath is established automatically when it is snapped on and locked. | 24 ... 240 | 0.05 ... 100 (1, 10, 100; selectable) | **3RA2812-1DW10** | | **3RA2812-2DW10** | |
| 3RT2.3[2] 3RT2.4[2][3] | S2, S3 | | 24 ... 90<br>90 ... 240 | 0.05 ... 100 (1, 10, 100; selectable) | **3RA2832-1DG10**<br>**3RA2832-1DH10** | | **3RA2832-2DG10**<br>**3RA2832-2DH10** | |
| ***For star-delta (wye-delta) starting*** | | | | | | | | |
| 3RT2.1, 3RT2.2 3RT2.3[2] 3RT2.4[2][4] | S00 ... S3 | **Varistor integrated** Comprising one basic module and two coupling modules The electrical connection between the function module and the contactor assembly is established automatically by snapping on and plugging in the connecting cables. | 24 ... 240 | 0.5 ... 60 (10, 30, 60; selectable) | **3RA2816-0EW20** | | **3RA2816-0EW20** | |
| **Accessories** | | | | | | | | |
| 3RA28 | S00 ... S3 | **Cover, sealable** | | | **3RA2910-0** | | **3RA2910-0** | |

1) AC voltage values apply for 50 and 60 Hz.
2) Cannot be fitted onto coupling relays and coupling contactor relays.
3) From product version E03 onwards, 3RA283. function modules can be used for 3RT2.4 contactors.
4) From product version E04 onwards, 3RA2816 function modules can be used for 3RT2.4 contactors.

Technical specifications, see page 3/79.

***Assembly of reversing starters***

We offer ready-made wiring kits for the assembly of reversing starters. Use of these wiring kits offers further advantages, see page 3/148.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

**More information**

Equipment Manual for 3RA2711 function modules for IO-Link, see https://support.industry.siemens.com/cs/ww/en/view/39319600

Equipment Manual for 3RA2712 function modules for AS-Interface, see https://support.industry.siemens.com/cs/ww/en/view/39318922

3RA2711-1AA00 3RA2711-2AA00 3RA2711-1BA00 3RA2712-1CA00 3RA2711-2BA00 3RA2711-2CA00

| For contactors | Size | Version | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|
| Type | | | Article No. | Price per PU | Article No. | Price per PU |
| **SIRIUS 3RA27 function modules for direct-on-line starting** | | | | | | |
| 3RT201 ... 3RT204[1] | S00 ... S3 | **IO-Link connection**<br>Includes one module connector for creating an IO-Link group | **3RA2711-1AA00** | | **3RA2711-2AA00** | |
| | | **AS-Interface integration** | **3RA2712-1AA00** | | **3RA2712-2AA00** | |
| **SIRIUS 3RA27 function modules for reversing starting[2]** | | | | | | |
| 3RT201 ... 3RT204[1] | S00 ... S3 | **IO-Link connection**<br>Comprising one basic and one coupling module and an additional module connector[3] for creating an IO-Link group | **3RA2711-1BA00** | | **3RA2711-2BA00** | |
| | | **AS-Interface integration**<br>Comprising one basic and one coupling module | **3RA2712-1BA00** | | **3RA2712-2BA00** | |
| | | **Assembly kits for making 3-pole contactor assemblies**<br>See page 3/104 | | | | |
| **SIRIUS 3RA27 function modules for star-delta (wye-delta) starting[4]** | | | | | | |
| 3RT201 ... 3RT204[1] | S00 ... S3 | **IO-Link connection**<br>Comprising one basic and two coupling modules and an additional module connector[3] for creating an IO-Link group | **3RA2711-1CA00** | | **3RA2711-2CA00** | |
| | | **AS-Interface integration**<br>Comprising one basic and two coupling modules | **3RA2712-1CA00** | | **3RA2712-2CA00** | |
| | | **Assembly kits for making 3-pole contactor assemblies**<br>See page 3/105 | | | | |

1) From product version E06 onwards, 3RA271. function modules can be used for 3RT2.4 contactors.

2) For prewired reversing contactor assemblies with voltage tap-off, see pages 3/149 to 3/152. When these contactor assemblies are used, the assembly kit for the wiring is already integrated.

3) 3RA2711-0EE17 module connectors for size S3 must be ordered separately, see page 3/102.

4) For complete contactor assemblies for star-delta (wye-delta) starting including function modules, see pages 3/167 to 3/170.

Technical specifications for 3RA27 function modules, see page 3/80.

For contactors with voltage tap-off, see pages 3/53, 3/57, 3/61 and 3/63.

For IO-Link masters and AS-Interface masters, routers and power supply units, see "Industrial communication", page 2/1 onwards.

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3RA2711-0EE10

3RA2711-0EE06

3RA2711-0EE15

3RA2910-0

3RA2711-0EE11

3RA6935-0A

| For function modules<br>Type | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Accessories for 3RA27 function modules** | | | | | | |
| 3RA271.-..A00 | **Module connector set**<br>Comprising:<br>• Two module connectors (14-pole, short)<br>• Two interface covers | **3RA2711-0EE10** | | 1 | 1 unit | 41B |
| 3RA271.-..A00 | **Module connectors** | | | | | |
| | • 14-pole | | | | | |
| | - 6 cm | **3RA2711-0EE17** | | 1 | 1 unit | 41B |
| | - 9 cm | **3RA2711-0EE06** | | 1 | 1 unit | 41B |
| | - 13 cm | **3RA2711-0EE18** | | 1 | 1 unit | 41B |
| | - 26 cm | **3RA2711-0EE07** | | 1 | 1 unit | 41B |
| | - 33.5 cm | **3RA2711-0EE08** | | 1 | 1 unit | 41B |
| | • 10-pole, 9 cm<br>for the additional auxiliary voltage infeed | **3RA2711-0EE16** | | 1 | 1 unit | 41B |
| | Note:<br>Selection of module connectors, see Equipment Manual for 3RA2711 function modules for IO-Link. | | | | | |
| 3RA271.-..A00 | **Interface covers**<br>(set of 5) | **3RA2711-0EE15** | | 1 | 1 unit | 41B |
| 3RA271.-..A00 | **Cover, sealable** | **3RA2910-0** | | 1 | 5 units | 41B |
| **Operator panel for communication via IO-Link** | | | | | | |
| 3RA2711-..A00 | **Operator panel (set)**<br>Comprising:<br>• 1 x operator panel<br>• 1 x enabling module<br>• 1 x interface cover<br>• 1 x fixing terminal | **3RA6935-0A** | | 1 | 1 unit | 42F |
| 3RA2711-..A00 | **Connecting cable**<br>For connecting the operator panel to the coupling module<br>Length 2 m, 10- to 14-pole | **3RA2711-0EE11** | | 1 | 1 unit | 41B |
| 3RA2711-..A00 | **Enabling modules** (replacement) | **3RA6936-0A** | | 1 | 1 unit | 42F |
| 3RA2711-..A00 | **Interface covers** (replacement) | **3RA6936-0B** | | 1 | 5 units | 42F |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| For contactors | Rated control supply voltage $U_S$ | Time setting range $t$ | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Type | V | s | Article No. | Price per PU | | | |
| **Mechanical latching blocks (no switching state change in the event of voltage drop)** | | | | | | | |
| ***Size S0*** | | | | | | | |
| **For snapping onto the front of contactors** | | | | | | | |
| The contactor remains in the energized state in the event of voltage drop. | | | | | | | |
| 3RT202, 3RT232, 3RT252 | 24 AC/DC | -- | **3RT2926-3AB31** | | 1 | 1 unit | 41B |
| | 110 AC/DC | -- | **3RT2926-3AF31** | | 1 | 1 unit | 41B |
| | 230 AC/DC | -- | **3RT2926-3AP31** | | 1 | 1 unit | 41B |

3RT2926-3A.31

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **OFF-delay devices for contactors with AC/DC and DC operation** | | | | | | | |
| ***Sizes S00 to S3*** | | | | | | | |
| **Non-adjustable delay time** | | | | | | | |
| 3RT201.-1BF4., 3RT202.-1BF4., 3RT203.-1NF3., 3RH2...-1BF40 | 110 AC/DC | S00: > 0.1<br>S0: > 0.08<br>S2: > 0.25 | **3RT2916-2BK01** | | 1 | 1 unit | 41B |
| 3RT201.-1BM4./-1BP4., 3RT202.-1BM4./-1BP4., 3RT203.-1NP3., 3RH2...-1BM40/-1BP40 | 220/230 AC/DC | S00: > 0.5<br>S0: > 0.3<br>S2: > 0.8 | **3RT2916-2BL01** | | 1 | 1 unit | 41B |
| 3RT201.-1BB4., 3RT202.-1BB4., 3RT203.-1NB3., 3RT204.-1NB3., 3RT244.-1NB3., 3RH2...-1BB40 | 24 DC | S00: > 0.2<br>S0: > 0.1<br>S2: > 0.1<br>S3: > 0.05 | **3RT2916-2BE01** | | 1 | 1 unit | 41B |

3RT2916-2B.01

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3

## Selection and ordering data

| For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Safety main circuit connectors for two contactors** | | | | | | | |
| 3RA2926-1A | | | | | | | |
| 3RT2.1 | **S00** | For series connection of two contactors | **3RA2916-1A** | | 1 | 1 unit | 41B |
| 3RT2.2 | **S0** | | **3RA2926-1A** | | 1 | 1 unit | 41B |
| 3RT2.3 | **S2** | | **3RA2936-1A** | | 1 | 1 unit | 41B |

PU (UNIT, SET, M) = 1
PS* = 1 unit (unless otherwise specified)
PG = 41B

| For contactors Type | Size | Version | Article No. Screw terminals | Price per PU | Article No. Spring-loaded terminals | Price per PU |
|---|---|---|---|---|---|---|
| **Assembly kits for reversing contactor assemblies for making 3-pole contactor assemblies** | | | | | | |
| 3RA2923-2AA1 | | | | | | |
| 3RT201 | **S00-S00** | The assembly kit contains: Mechanical interlock, two connecting clips for two contactors, wiring modules on the top and bottom | | | | |
| | | • For main, auxiliary and control circuits | **3RA2913-2AA1** | | **3RA2913-2AA2** | |
| 3RA2923-2AA2 | | | | | | |
| 3RT202 | **S0-S0** | The assembly kit contains: Mechanical interlock, two connecting clips for two contactors, wiring modules on the top and bottom | | | | |
| | | • For main, auxiliary and control circuits[1] | **3RA2923-2AA1** | | -- | |
| | | • Only for main circuit[2] | -- | | **3RA2923-2AA2** | |
| 3RA2933-2AA1 | | | | | | |
| 3RT203 | **S2-S2** | The assembly kit contains: Two connectors for two contactors, wiring modules on the top and bottom (3RA2934-2B mechanical interlock must be ordered separately, see page 3/108) | | | | |
| | | • For main and auxiliary circuits | **3RA2933-2AA1** | | -- | |
| | | • Only for main circuit[3] | -- | | **3RA2933-2AA2** | |
| 3RA2943-2AA1 | | | | | | |
| 3RT204 | **S3-S3** | The assembly kit contains: Two connectors for two contactors, wiring modules on the top and bottom (3RA2934-2B mechanical interlock must be ordered separately, see page 3/108) | | | | |
| | | • For main and auxiliary circuits | **3RA2943-2AA1** | | -- | |
| | | • Only for main circuit[3] | -- | | **3RA2943-2AA2** | |
| 3RA2943-2AA2 | | | | | | |
| 3RT1.5 | **S6-S6** | The assembly kit contains: Wiring modules on the top and bottom | **3RA1953-2A** | | **3RA1953-2A** | |
| 3RT1.6 | **S10-S10** | | **3RA1963-2A** | | **3RA1963-2A** | |
| 3RT1.7 | **S12-S12** | | **3RA1973-2A** | | **3RA1973-2A** | |
| 3RA1953-2A | | | | | | |
| 3RA1963-2A | | | | | | |

[1] Use of the 3RA2923-2AA1 assembly kit in conjunction with the 3RT202.-.....-3MA0 contactors is limited because the auxiliary switches in the basic unit are not allowed to be used on account of the permanently mounted auxiliary switch.

[2] Version in size S0 with spring-loaded terminals: Only the wiring modules for the main circuit are included. No connecting clips are included for the auxiliary and control circuit.

[3] Version in sizes S2 and S3 with spring-loaded terminals in the auxiliary and control circuits: Only the wiring modules for the main circuit are included. A cable set is included for the auxiliary circuit.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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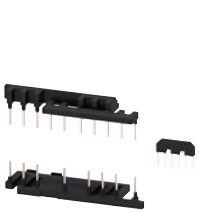
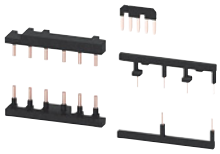
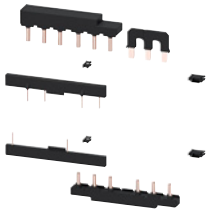
PU (UNIT, SET, M) = 1
PS* = 1 unit (unless otherwise specified)
PG = 41B


3RA2913-2BB1


3RA2923-2BB1

3RA2923-2BB2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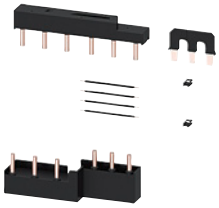
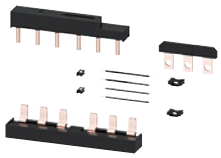

3RA2943-2C


3RA2943-2BB2

| For contactors | Size | Version | Screw terminals<br>Article No. | Price per PU | Spring-loaded terminals<br>Article No. | Price per PU |
|---|---|---|---|---|---|---|
| Type | | | | | | |
| **Assembly kits[1] for contactor assemblies for star-delta (wye-delta) starting for making 3-pole contactor assemblies** | | | | | | |
| 3RT201 | **S00-S00-S00** | The assembly kit contains:<br>Mechanical interlock, four connecting clips for three contactors, a star jumper, wiring modules on the top and bottom | | | | |
| | | • For main, auxiliary and control circuits | **3RA2913-2BB1** | | **3RA2913-2BB2** | |
| 3RT202 | **S0-S0-S0** | The assembly kit contains:<br>Mechanical interlock, four connecting clips for three contactors, a star jumper, wiring modules on the top and bottom | | | | |
| | | • For main, auxiliary and control circuits | **3RA2923-2BB1** | | **--** | |
| | | • Only for main circuit | **--** | | **3RA2923-2BB2** | |
| 3RT202 | **S0-S0-S0** | The assembly kit contains:<br>Mechanical interlock, four connecting clips for three contactors, a star jumper, wiring modules on the top and bottom, 3-phase infeed terminal | | | | |
| | | • For main, auxiliary and control circuits | **3RA2924-2BB1** | | **--** | |
| 3RT203 | **S2-S2-S0** | The assembly kit[2] contains:<br>Two connectors for three contactors, an S0 star jumper, a spacer, wiring modules on the top and bottom (S2-S0) for the main circuit, a cable set for the auxiliary circuit, a cable for connecting the A2 coil contact of the line contactor to the A2 coil contact of the delta contactor | **3RA2933-2C** | | **3RA2933-2C** | |
| 3RT203 | **S2-S2-S2** | The assembly kit[2] contains:<br>Four connectors for three contactors, an S2 star jumper, a cable for connecting the A2 coil contact of the line contactor to the A2 coil contact of the delta contactor and | | | | |
| | | • Wiring modules on the top and bottom for the main circuit and the auxiliary circuit | **3RA2933-2BB1** | | **--** | |
| | | • Wiring modules on the top and bottom for the main circuit, a cable set for the auxiliary circuit | **--** | | **3RA2933-2BB2** | |
| 3RT204 | **S3-S3-S2** | The assembly kit[2] contains:<br>Two connectors for three contactors, an S2 star jumper, a spacer, wiring modules on the top and bottom (S3-S2) for the main circuit, a cable set for the auxiliary circuit, a cable for connecting the A2 coil contact of the line contactor to the A2 coil contact of the delta contactor | **3RA2943-2C** | | **3RA2943-2C** | |
| 3RT204 | **S3-S3-S3** | The assembly kit[2] contains:<br>Four connectors for three contactors, an S3 star jumper, a cable for connecting the A2 coil contact of the line contactor to the A2 coil contact of the delta contactor and | | | | |
| | | • Wiring modules on the top and bottom for the main circuit and the auxiliary circuit | **3RA2943-2BB1** | | **--** | |
| | | • Wiring modules on the top and bottom for the main circuit, a cable set for the auxiliary circuit | **--** | | **3RA2943-2BB2** | |

1) When using the function modules for contactor assemblies for star-delta (wye-delta) starting, the wiring modules for the auxiliary current are not required.

2) The 3RA2934-2B mechanical interlock for sizes S2 and S3 must be ordered separately, see page 3/108.

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| | For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Assembly kits for contactor assemblies for star-delta (wye-delta) starting for making 3-pole contactor assemblies** | | | | | | | | |
| | | | The assembly kit contains: link rails at bottom (a double infeed between the line contactor and the delta contactor is recommended.) | | | | | |
| 3RA1953-3G | 3RT1.5, 3RT204 | **S6-S6-S3** For connection with box terminal only | The S3 star jumper must be ordered separately, see page 3/107. | **3RA1953-3G** | | 1 | 1 unit | 41B |
| 3RA1953-2B | 3RT1.5 | **S6-S6-S6** For connection with box terminal only | -- | **3RA1953-2B** | | 1 | 1 unit | 41B |
| 3RA1953-2N | 3RT1.5 | **S6-S6-S6** For connection without box terminal | -- | **3RA1953-2N** | | 1 | 1 unit | 41B |
| 3RA1963-3E | 3RT1.6, 3RT1.5 | **S10-S10-S6** For connection with box terminal only | The S6 star jumper must be ordered separately, see page 3/107. | **3RA1963-3E** | | 1 | 1 unit | 41B |
| 3RA1963-2B | 3RT1.6 | **S10-S10-S10** For connection without box terminal | -- | **3RA1963-2B** | | 1 | 1 unit | 41B |
| 3RA1973-3E | 3RT1.7, 3RT1.6 | **S12-S12-S10** For connection with box terminal only | The S10 star jumper must be ordered separately, see page 3/107. | **3RA1973-3E** | | 1 | 1 unit | 41B |
| 3RA1973-2B | 3RT1.7 | **S12-S12-S12** For connection without box terminal | -- | **3RA1973-2B** | | 1 | 1 unit | 41B |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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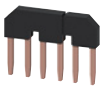
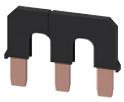
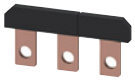
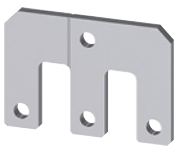
PU (UNIT, SET, M) = 1
PS* = 1 unit (unless otherwise specified)
PG = 41B

## Single wiring modules for making 3-pole contactor assemblies

| For contactors Type | Size | Version | | Article No. Screw terminals | Price per PU | Article No. Spring-loaded terminals | Price per PU |
|---|---|---|---|---|---|---|---|
| 3RA2913-3DA1 | | | | | | | |
| 3RT201 | **S00-S00** | • Top (in-phase) | PS = 5 units | **3RA2913-3DA1** | | **3RA2913-3DA2** | |
| | | • Bottom (with phase reversal) | PS = 5 units | **3RA2913-3EA1** | | **3RA2913-3EA2** | |
| 3RA2923-3DA1 | | | | | | | |
| 3RT202 | **S0-S0** | • Top (in-phase) | PS = 5 units | **3RA2923-3DA1** | | **3RA2923-3DA2** | |
| | | • Bottom (with phase reversal) | PS = 5 units | **3RA2923-3EA1** | | **3RA2923-3EA2** | |
| 3RA1933-3D | | | | | | | |
| 3RT203 | **S2-S2** | • Top (in-phase), contactor clearance 10 mm | | **3RA1933-3D** | | **3RA1933-3D** | |
| | | • Bottom (with phase reversal), contactor clearance 10 mm | | **3RA1933-3E** | | **3RA1933-3E** | |
| 3RA1943-3E | | | | | | | |
| 3RT204 | **S3-S3** | • Top (in-phase), contactor clearance 10 mm | | **3RA1943-3D** | | **3RA1943-3D** | |
| | | • Bottom (with phase reversal), contactor clearance 10 mm | | **3RA1943-3E** | | **3RA1943-3E** | |
| 3RA1953-3D | | | | | | | |
| 3RT1.5 | **S6-S6** | • Top (in-phase, for connection with box terminal), contactor clearance 10 mm | | **3RA1953-3D** | | **3RA1953-3D** | |
| | | • Top (with phase reversal, for connection without box terminal), contactor clearance 10 mm | | **3RA1953-3P** | | **3RA1953-3P** | |

## Star jumpers (links for paralleling), 3-pole

| | | | | Screw terminals | Price per PU | Spring-loaded terminals | Price per PU |
|---|---|---|---|---|---|---|---|
|  3RT1916-4BA31 | | | | | | | |
| 3RT201 | **S00** | **With through-hole** The links for paralleling can be reduced by one pole. | | **3RT1916-4BA31** | | **3RT2916-4BA32** | |
| 3RT2926-4BA32 | | | | | | | |
| 3RT202 | **S0** | Without connecting terminal | | **3RT1926-4BA31** | | **3RT2926-4BA32** | |
|  3RT1936-4BA31 | | | | | | | |
| 3RT203 | **S2** | | | **3RT1936-4BA31** | | **3RT1936-4BA31** | |
|  3RT1946-4BA31 | | | | | | | |
| 3RT204 | **S3** | | | **3RT1946-4BA31** | | **3RT1946-4BA31** | |
| 3RT1956-4BA31 | | | | | | | |
| 3RT1.5 | **S6** | | | **3RT1956-4BA31** | | **3RT1956-4BA31** | |
|  3RT1966-4BA31 | | | | | | | |
| 3RT1.6, 3RT1.7 | **S10, S12** | | | **3RT1966-4BA31** | | **3RT1966-4BA31** | |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| | For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Mechanical interlock assembly kits for two contactors for making 3- and 4-pole contactor assemblies** | | | | | | | | |
| 3RA2922-2H | 3RT201, 3RT231 | **S00-S00** | The interlocking assembly kits can be used without a contactor clearance. One assembly kit consists of a mechanical interlock and two connecting clips. | **3RA2912-2H** | | 1 | 10 units | 41B |
| | 3RT202, 3RT232 | **S0-S0** | | **3RA2922-2H** | | 1 | 10 units | 41B |

| | For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Mechanical interlocks for contactor assemblies** | | | | | | | | |
| | | | A contactor clearance of 10 mm must be considered when using the following mechanical interlocks. | | | | | |
| 3RA2934-2B | 3RT202, 3RT203 | **S2-S2, S3-S3** | **Mechanical interlocks** Note: | **3RA2934-2B** | | 1 | 1 unit | 41B |
| | 3RT202, 3RT203, 3RT204 | **S2-S2-S0, S2-S2-S2, S3-S3-S2, S3-S3-S3** | The mechanical interlock for sizes S2 and S3 must be ordered separately. | | | | | |
| 3RA1954-2G | 3RT1.5 with 3RT204[1)] | **S6 (3RT1)-S6 (3RT1)-S3 (3RT2)[1)]** | **Adapter in addition to the mechanical interlock** The mechanical interlock is only possible together with this 3RA1954-2G adapter and the 3RA1954-2A mechanical interlock. Two connectors are included with the adapter, the interlock must be ordered separately. | **3RA1954-2G** | | 1 | 1 unit | 41B |
| 3RA1954-2A | 3RT1.5 3RT1.6 3RT1.7 | **S6 S10 S12** | **Mechanical interlocks** Without auxiliary contacts; contactors in sizes S6, S10 and S12 can be interlocked with each other as required. No adaption of mounting depth is necessary. | **3RA1954-2A** | | 1 | 1 unit | 41B |
| **Mechanical connectors for contactor assemblies** | | | | | | | | |
| | | | Two connectors are required for each assembly. The contactor clearance must be considered when selecting the connectors. | | | | | |
| 3RA1932-2D | | | **3-pole version** | | | | | |
| | 3RT203, 3RT204 | **S2-S2, S3-S3** | • Without contactor clearance | **3RA2932-2C** | | 1 | 10 units | 41B |
| | | | • With 10 mm contactor clearance | **3RA2932-2D** | | 1 | 10 units | 41B |
| | 3RT105 | **S6-S6** | • With 10 mm contactor clearance (1 unit corresponds to 2 parts for 1 assembly) | **3RA1932-2D** | | 1 | 10 units | 41B |
| | | | **4-pole version** | | | | | |
| | 3RT233 | **S2-S2** | • With 20 mm contactor clearance | **3RA2932-2G** | | 1 | 10 units | 41B |
| | 3RT234. | **S3-S3** | • With 10 mm contactor clearance | **3RA2942-2G** | | 1 | 10 units | 41B |
| 3RA2942-2G | | | | | | | | |

[1)] The 3RA1954-2G adapter cannot be used in conjunction with 3RT204..-.KB coupling contactors, size S3.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

| | For contactors Type | Size | Version | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Links for paralleling for main conducting paths** | | | | | | | | |
| | | | The links for paralleling (insulated) can be reduced by one pole. With connecting terminal | | | | | |
| | | | **3-pole** | | | | | |
| 3RT1916-4BB31 | 3RT201 | **S00** | • Max. conductor cross-section: 25 mm$^2$, stranded | **3RT1916-4BB31** | | 1 | 1 unit | 41B |
| 3RT2926-4BB31 | 3RT202 | **S0** | • Max. conductor cross-section: 50 mm$^2$, stranded | **3RT2926-4BB31** | | 1 | 1 unit | 41B |
| 3RT1936-4BB31 | 3RT203 | **S2** | • Max. conductor cross-section: 120 mm$^2$, stranded | **3RT1936-4BB31** | | 1 | 1 unit | 41B |
| 3RT1946-4BB31 | 3RT204, 3RT244 | **S3** | • Max. conductor cross-section: 185 mm$^2$, stranded<br>A cover plate is included for touch protection (can only be used when box terminal is removed). | **3RT1946-4BB31** | | 1 | 1 unit | 41B |
| | | | **4-pole** | | | | | |
| 3RT1916-4BB41 | 3RT231, 3RT251 | **S00** | • Max. conductor cross-section: 25 mm$^2$, stranded | **3RT1916-4BB41** | | 1 | 1 unit | 41B |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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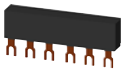
| | For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **1-phase infeed terminals** | | | | | | | | |
| 3RA2943-3L | 3RT204, 3RT244, 3RT264 | **S3** | Conductor cross-section: 95 mm² | **3RA2943-3L** | | 1 | 1 unit | 41B |
| **3-phase infeed terminals** | | | | | | | | |
| 3RA2913-3K | 3RT201 | **S00** | Max. conductor cross-section: Up to 10 mm², AWG 12 ... 8 | **3RA2913-3K** | | 1 | 10 units | 41B |
| 3RV2925-5AB | 3RT202, 3RT262 | **S0** | Max. conductor cross-section: Up to 25 mm², AWG 10 ... 2/0 | **3RV2925-5AB** | | 1 | 1 unit | 41E |
| 3RV2935-5A | 3RT203, 3RT263 | **S2** | Max. conductor cross-section: Up to 70 mm², AWG 10 ... 2/0 | **3RV2935-5A** | | 1 | 1 unit | 41E |
| **3-phase infeed terminals with increased clearance and creepage distances** | | | | | | | | |
| 3RV2935-5E | 3RT203 | **S2** | Max. conductor cross-section: Up to 70 mm², AWG 10 ... 2/0 | **3RV2935-5E** | | 1 | 1 unit | 41E |
| **3-phase busbars** | | | | | | | | |
|  3RV1915-1AB | 3RT202 | **S0** | Bridging phase-by-phase of all input terminals of the line contactor (Q11) and delta contactor (Q13) | **3RV1915-1AB** | | 1 | 1 unit | 41E |
| **Terminal blocks for connecting auxiliary conductors to main terminals** | | | | | | | | |
| | | | **Box terminal blocks**<br>For round and ribbon cables<br>(Connectable cross-sections of the contactors for size S3, see page 3/40 and for sizes 6 to S12, see page 3/44) | | | | | |
| 3RT2946-4G | 3RT204 | **S3** | • 3-pole, for connection of main contacts, 2.5 to 70 mm² | **3RT2946-4G** | | 1 | 1 unit | 41B |
| 3RT1956-4G | 3RT1.5 | **S6** | • Up to 70 mm², as standard on 3RT1054-1 contactor (55 kW) | **3RT1955-4G** | | 1 | 1 unit | 41B |
| | | | • Up to 120 mm² | **3RT1956-4G** | | 1 | 1 unit | 41B |
| 3RT1966-4G | 3RT1.6, 3RT1.7 | **S10, S12** | • Up to 240 mm², with auxiliary conductor connection up to 2.5 mm² | **3RT1966-4G** | | 1 | 1 unit | 41B |
| 3TX7500-0A | 3RT1.5 | **S6** | **Box terminal for auxiliary conductor connection, 1-pole**<br>For connection of auxiliary and control cables (0.5 ... 2.5 mm²) to the main conductor terminals | **3TX7500-0A** | | 1 | 1 unit | 41B |
| 3RT2946-4F | 3RT204 | **S3** | **Auxiliary conductor terminals, 3-pole**<br>For connection of auxiliary and control cables (0.5 ... 2.5 mm²) to the main conductor terminals | **3RT2946-4F** | | 1 | 1 unit | 41B |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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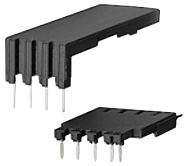
| | For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Solder pin adapters for mounting contactors on printed circuit boards up to 5.5 kW/12 A** | | | | | | | | |
| | | | | **Screw terminals** | | | | |
| | 3RT2.1, 3RH21 | **S00** | Assembly kit for soldering contactors with an integrated auxiliary contact onto a printed circuit board<br>Note:<br>One kit is required for one contactor. | **3RT1916-4KA1** | | 1 | 4 units | 41B |
| 3RT1916-4KA1 | | | | | | | | |
|  | 3RT2.1, 3RH21 | **S00** | Assembly kit for soldering contactors with 4-pole mounted auxiliary switch onto a printed circuit board<br>Note:<br>One kit is required for one contactor. | **3RT1916-4KA2** | | 1 | 4 units | 41B |
| | | | | | | | | |
| 3RT1916-4KA2 | | | | | | | | |
| **Coil connection modules for connections from top or from below** | | | | | | | | |
| | 3RT2.2, 3RT2.3, 3RT2.4 | **S0 to S3** | • Connection from top | **3RT2926-4RA11** | | 1 | 1 unit | 41B |
| | | | • Connection from below | **3RT2926-4RB11** | | 1 | 1 unit | 41B |
| | | | • Connection diagonally | **3RT2926-4RC11** | | 1 | 1 unit | 41B |
| 3RT2926-4RA11 | | | | **Spring-loaded terminals** | | | | |
| | 3RT2.2 | **S0** | • Connection from top | **3RT2926-4RA12** | | 1 | 1 unit | 41B |
| | | | • Connection from below | **3RT2926-4RB12** | | 1 | 1 unit | 41B |
| 3RT2926-4RA12 | | | | | | | | |

| | For contactors Type | Size | Version | **Screw terminals** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Connection module (adapter and plug) for contactors with screw terminals** | | | | | | | | |
| | | | The connection module comprises an adapter and a motor feeder connector. | | | | | |
| | | | **Adapters** | | | | | |
| | | | Ambient temperature $t_{u\ max.}$ = 60 °C | | | | | |
| 3RT1926-4RD01 | 3RT201, 3RH2 | **S00** | • Rated operational current $I_e$ at AC-3/AC-3e/400 V: 20 A | **3RT1916-4RD01** | | 1 | 1 unit | 41B |
| | 3RT202 | **S0** | • Rated operational current $I_e$ at AC-3/AC-3e/400 V: 25 A | **3RT1926-4RD01** | | 1 | 1 unit | 41B |
| | 3RT201, 3RT202, 3RH2 | **S00, S0** | **Motor feeder connector** | **3RT1900-4RE01** | | 1 | 1 unit | 41B |
| 3RT1900-4RE01 | | | | | | | | |

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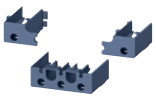
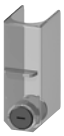
3

## Selection and ordering data

| | For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Terminal covers** | | | | | | | | |
| | | | **Covers for contactors with screw terminals (box terminals)** (2 units required per contactor) | | | | | |
| 3RT2936-4EA2 3RT2946-4EA2 | 3RT203 | **S2** | • For 3-pole contactors | **3RT2936-4EA2** | | 1 | 1 unit | 41B |
| | 3RT204, 3RT244 | **S3** | | **3RT2946-4EA2** | | 1 | 1 unit | 41B |
| 3RT1956-4EA2 3RT1966-4EA2 | 3RT1.5 | **S6**[1] | | **3RT1956-4EA2** | | 1 | 1 unit | 41B |
| | 3RT1.6, 3RT1.7 | **S10**[1], **S12**[1] | | **3RT1966-4EA2** | | 1 | 1 unit | 41B |
| | 3RT233, 3RT253 | **S2** | • For 4-pole contactors (Scope of supply: one 3-pole and two 1-pole terminal covers are supplied) | **3RT2936-4EA4** | | 1 | 1 unit | 41B |
| 3RT2936-4EA4  3RT2946-4EA4 | 3RT234, 3RT254 | **S3** | | **3RT2946-4EA4** | | 1 | 1 unit | 41B |
| | | | **Covers for contactors with cable lugs and busbar connections** | | | | | |
| 3RT1946-4EA1 | | | • For complying with the phase clearances and as touch protection if box terminal is removed (2 units required per contactor) | | | | | |
| | 3RT2.4 | **S3** | - Length: 100 mm | **3RT1946-4EA1** | | 1 | 1 unit | 41B |
| | 3RT1.5 | **S6**[1] | - Length: 100 mm | **3RT1956-4EA1** | | 1 | 1 unit | 41B |
| | 3RT1.6, 3RT1.7 | **S10**[1], **S12**[1] | - Length: 120 mm | **3RT1966-4EA1** | | 1 | 1 unit | 41B |
| 3RT1956-4EA1 3RT1966-4EA1 | | | • For the assembly kits for 3RA1953-.. contactor assemblies for star-delta (wye-delta) starting (see page 3/106) or for the 3RA1953-3 single wiring modules. (see page 3/107) | | | | | |
| 3RT1956-4EA4 | 3RT1.5 | **S6** | - Length: 38 mm | **3RT1956-4EA4** | | 1 | 1 unit | 41B |
| | | | • For the assembly kits for reversing contactor assemblies and contactor assemblies for star-delta (wye-delta) starting | | | | | |
| 3RT1966-4EA3 | 3RT1.6, 3RT1.7 | **S10, S12** | - Length: 42 mm | **3RT1966-4EA3** | | 1 | 1 unit | 41B |
| | | | **Terminal covers for busbar connections** | | | | | |
| 3RT1956-4EA3 3RT1966-4EA3 | | | • Cover the three busbar connections, between the contactor and 3RB2 overload relay | | | | | |
| | 3RT1.5 | **S6** | - Length: 27 mm | **3RT1956-4EA3** | | 1 | 1 unit | 41B |
| | 3RT1.6, 3RT1.7 | **S10, S12** | - Length: 42 mm | **3RT1966-4EA3** | | 1 | 1 unit | 41B |
| | | | • Can be screwed on free screw end; covers one busbar connection (1 set = 6 units) | | | | | |
| 3TX6526-3B  3TX6546-3B | 3RT1.5 | **S6** | - M8 | **3TX6526-3B** | | 1 | 1 unit | 41B |
| | 3RT1.6, 3RT1.7 | **S10, S12** | - M10 | **3TX6546-3B** | | 1 | 1 unit | 41B |
| **Sealable covers** | | | | | | | | |
| 3RT2916-4MA10 3RT1926-4MA10 | 3RT2.1, 3RT2.2, 3RT2.3, 3RT2.4, 3RH2[2] | **S00 ... S3** | For preventing manual operation (Not suitable for coupling contactors) | **3RT2916-4MA10** | | 1 | 5 units | 41B |
| | 3RT1.5 ... 3RT1.7[2] | **S6 ... S12** | | **3RT1926-4MA10** | | 1 | 5 units | 41B |

[1] Also fits on contactors of sizes S6 to S12 with box terminals.

[2] Exception: Contactors and contactor relays with auxiliary switch mounted on the front.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

| | For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Base plates** | | | | | | | | |
| | ***For reversing contactor assemblies*** | | | | | | | |
| 3RA1952-2A | 3RT1.5 | **S6** | For customer assembly of reversing contactor assemblies | **3RA1952-2A** | | 1 | 1 unit | 41B |
| | 3RT1.6 | **S10** | | **3RA1962-2A** | | 1 | 1 unit | 41B |
| | 3RT1.7 | **S12** | | **3RA1972-2A** | | 1 | 1 unit | 41B |
| | ***For contactor assemblies for star-delta (wye-delta) starting*** | | | | | | | |
| 3RA2932-2F | 3RT2/ 3RT2/ 3RT2 | **S2-S2-S0, S2-S2-S2** | For configuring contactor assemblies for star-delta (wye-delta) starting | **3RA2932-2F** | | 1 | 1 unit | 41B |
| 3RA2942-2F | | **S3-S3-S2, S3-S3-S3** | | **3RA2942-2F** | | 1 | 1 unit | 41B |
| 3RA1952-2E | 3RT1/ 3RT1/ 3RT2 | **S6-S6-S3** | For customer assembly of contactor assemblies for star-delta (wye-delta) starting with a **laterally mounted** timing relay | **3RA1952-2E** | | 1 | 1 unit | 41B |
| | 3RT1/ 3RT1/ 3RT1 | **S6-S6-S6** | 10 mm clearance between the contactors | **3RA1952-2F** | | 1 | 1 unit | 41B |
| | | **S10-S10-S6** | | **3RA1962-2E** | | 1 | 1 unit | 41B |
| | | **S10-S10-S10** | | **3RA1962-2F** | | 1 | 1 unit | 41B |
| | | **S12-S12-S10** | | **3RA1972-2E** | | 1 | 1 unit | 41B |
| 3RA1952-2F | | **S12-S12-S12** | | **3RA1972-2F** | | 1 | 1 unit | 41B |
| **Adapters for screw fixing** | | | | | | | | |
| 3RT1926-4P | 3RT2.2 | **S0** | Screw adapters for securing the contactors, two units required per contactor (1 pack = 10 sets for 10 contactors) | **3RT1926-4P** | | 1 | 10 units | 41B |
| **Connection kit for one complete contactor** | | | | | | | | |
| | | | Each set includes 6 screws, spring washers and nuts. | | | | | |
| | 3RT105 | **S6** | M 8 x 25 | **3RT1955-4PA00** | | 1 | 1 unit | 41B |
| | 3RT106, 3RT107 | **S10, S12** | M 10 x 30 | **3RT1966-4PA00** | | 1 | 1 unit | 41B |
| 3RT1955-4PA00 | | | | | | | | |
| **EMC suppression modules; 3-phase, up to 7.5 kW** | | | | | | | | |
| | ***For contactors with AC or DC operation*** | | | | | | | |
| | | | | **Screw terminals** | | | | |
| 3RT2916-1PA. | 3RT201 | **S00** | **RC elements** (3 x 220 Ω/0.22 µF) | | | | | |
| | | | • Up to 400 V | **3RT2916-1PA1** | | 1 | 1 unit | 41B |
| | | | • Up to 575 V | **3RT2916-1PA2** | | 1 | 1 unit | 41B |
| | | | • Up to 690 V | **3RT2916-1PA3** | | 1 | 1 unit | 41B |
| | 3RT201 | **S00** | **Varistors** | | | | | |
| | | | • Up to 400 V | **3RT2916-1PB1** | | 1 | 1 unit | 41B |
| | | | • Up to 575 V | **3RT2916-1PB2** | | 1 | 1 unit | 41B |
| | | | • Up to 690 V | **3RT2916-1PB3** | | 1 | 1 unit | 41B |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories for SIRIUS 3RT contactors and SIRIUS 3RH2 contactor relays > Miscellaneous accessories

| | For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Additional load modules** | | | | | | | | |
| 3RT2916-1GA00 | 3RT2.1, 3RH2 | **S00** | For plugging onto the front of the contactors with or without auxiliary switches<br>For increasing the permissible residual current and for limiting the residual voltage, it ensures the safe opening of contactors with direct control via 230 V AC semiconductor outputs of SIMATIC controllers, simultaneously provides overvoltage damping<br>Rated voltage: 50/60 Hz AC, 180 ... 255 V<br>Operating range: 0.8 ... 1.1 x $U_s$ | **3RT2916-1GA00** | | 1 | 1 unit | 41B |
| **LED modules for displaying contactor operation** | | | | | | | | |
| 3RT2926-1QT00 | 3RT2, 3RT1 | **S00 ... S12** | For snapping into the location hole of an inscription label on the front of a contactor either directly on the contactor or on the front auxiliary switch.<br>The LED module is connected to coil terminals A1 and A2 of the contactor and indicates its energized state with a yellow LED. Connecting leads need to be extended as required.<br>Rated voltage: 24 ... 240 V AC/DC with reverse polarity protection | **3RT2926-1QT00** | | 1 | 5 units | 41B |
| **Control kit** | | | | | | | | |
| 3RT2916-4MC00 | 3RT2.1, 3RH2 | **S00** | For manual operation of contactor contacts, for startup and service | **3RT2916-4MC00** | | 1 | 5 units | 41B |
| | 3RT2.2 | **S0** | | **3RT2926-4MC00** | | 1 | 5 units | 41B |
| | 3RT2.3, 3RT2.4 | **S2, S3** | | **3RT2936-4MC00** | | 1 | 5 units | 41B |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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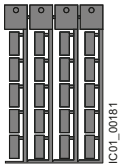
| | For contactors Type | Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Insulation stop for securely holding back the conductor insulation for conductors up to 1 mm²** | | | | | | | | |
| | | | | **Spring-loaded terminals** | | | | |
| 3RT2916-4JA02 | | | **Insulation stop strip** Can be inserted in cable entry of the spring-loaded terminal (two strips per contactor required) | | | | | |
| | 3RT2.1, 3RH2 | **S00** | • For basic units, removable individually | **3RT2916-4JA02** | | 1 | 20 units | 41B |
| 3RT1916-4JA02 | 3RT2.2 ... 3RT2.4, 3RT1, 3RH29 | **S0 ... S12** | • For auxiliary and control current on basic units and for mountable 3RH29 auxiliary switches, removable in pairs | **3RT1916-4JA02** | | 1 | 20 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | | | |
| 3RA2908-1A | 3RT, 3RH | **S00 ... S12** | **Screwdrivers** For all SIRIUS devices with spring-loaded terminals Length: approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | | | |
|   3RT2900-1SB20 | | | **Unit labeling plates**[1] For SIRIUS devices | | | | | |
| | 3RT | **S00 ... S12** | • 10 mm x 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| | | | • 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | | | **Adhesive labels** For SIRIUS devices | | | | | |
| | 3RT | **S00 ... S12** | • 19 mm x 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

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3

## Selection and ordering data

***Screw terminals and spring-loaded terminals***

3RT2924-5A.01

| For contactors | Rated control supply voltage $U_s$ 50 Hz | 50/60 Hz | 60 Hz | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| Type | V | V | V | | | | | |
| **Solenoid coils · AC operation** | | | | | | | | |
| ***Size S0*** | | | | | | | | |
| 3RT2023-.A, 3RT2024-.A, 3RT2025-.A | 24 | -- | -- | **3RT2924-5AB01** | | 1 | 1 unit | 41B |
| | 42 | -- | -- | **3RT2924-5AD01** | | 1 | 1 unit | 41B |
| | 48 | -- | -- | **3RT2924-5AH01** | | 1 | 1 unit | 41B |
| | 110 | -- | -- | **3RT2924-5AF01** | | 1 | 1 unit | 41B |
| | 230 | -- | -- | **3RT2924-5AP01** | | 1 | 1 unit | 41B |
| | 400 | -- | -- | **3RT2924-5AV01** | | 1 | 1 unit | 41B |
| | -- | 24 | -- | **3RT2924-5AC21** | | 1 | 1 unit | 41B |
| | -- | 42 | -- | **3RT2924-5AD21** | | 1 | 1 unit | 41B |
| | -- | 48 | -- | **3RT2924-5AH21** | | 1 | 1 unit | 41B |
| | -- | 110 | -- | **3RT2924-5AG21** | | 1 | 1 unit | 41B |
| | -- | 220 | -- | **3RT2924-5AN21** | | 1 | 1 unit | 41B |
| | -- | 230 | -- | **3RT2924-5AL21** | | 1 | 1 unit | 41B |
| | -- | -- | 24 | **3RT2924-5AC11** | | 1 | 1 unit | 41B |
| | 110 | -- | 120 | **3RT2924-5AK61** | | 1 | 1 unit | 41B |
| | 220 | -- | 240 | **3RT2924-5AP61** | | 1 | 1 unit | 41B |
| | -- | 100 | 110 | **3RT2924-5AG61** | | 1 | 1 unit | 41B |
| | -- | 200 | 220 | **3RT2924-5AN61** | | 1 | 1 unit | 41B |
| | -- | 400 | 440 | **3RT2924-5AR61** | | 1 | 1 unit | 41B |
| 3RT2026-.A, 3RT2027-.A, 3RT2028-.A 3RT2325-.A, 3RT2326-.A, 3RT2327-.A 3RT2526-.A | 24 | -- | -- | **3RT2926-5AB01** | | 1 | 1 unit | 41B |
| | 42 | -- | -- | **3RT2926-5AD01** | | 1 | 1 unit | 41B |
| | 48 | -- | -- | **3RT2926-5AH01** | | 1 | 1 unit | 41B |
| | 110 | -- | -- | **3RT2926-5AF01** | | 1 | 1 unit | 41B |
| | 230 | -- | -- | **3RT2926-5AP01** | | 1 | 1 unit | 41B |
| | 400 | -- | -- | **3RT2926-5AV01** | | 1 | 1 unit | 41B |
| | -- | 24 | -- | **3RT2926-5AC21** | | 1 | 1 unit | 41B |
| | -- | 42 | -- | **3RT2926-5AD21** | | 1 | 1 unit | 41B |
| | -- | 48 | -- | **3RT2926-5AH21** | | 1 | 1 unit | 41B |
| | -- | 110 | -- | **3RT2926-5AG21** | | 1 | 1 unit | 41B |
| | -- | 220 | -- | **3RT2926-5AN21** | | 1 | 1 unit | 41B |
| | -- | 230 | -- | **3RT2926-5AL21** | | 1 | 1 unit | 41B |
| | -- | -- | 24 | **3RT2926-5AC11** | | 1 | 1 unit | 41B |
| | 110 | -- | 120 | **3RT2926-5AK61** | | 1 | 1 unit | 41B |
| | 220 | -- | 240 | **3RT2926-5AP61** | | 1 | 1 unit | 41B |
| | -- | 100 | 110 | **3RT2926-5AG61** | | 1 | 1 unit | 41B |
| | -- | 200 | 220 | **3RT2926-5AN61** | | 1 | 1 unit | 41B |
| | -- | 400 | 440 | **3RT2926-5AR61** | | 1 | 1 unit | 41B |

Note:

Contactors with AC and AC/DC coils have different depths. It is only possible to replace the coils on AC contactors with AC coils. It is not possible to replace the coils on DC contactors.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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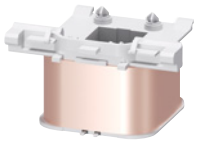
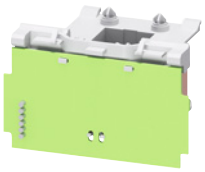
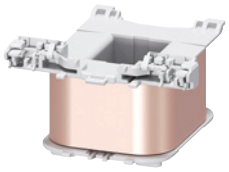
***Screw terminals and spring-loaded terminals***



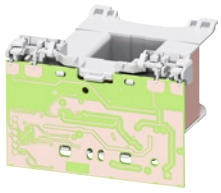
3RT2934-5A.01



3RT2934-5N.31



3RT2944-5A..1



3RT2944-5N.31

| For contactors | Rated control supply voltage $U_s$ | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | 50 Hz | 50/60 Hz | 60 Hz | DC | | | | | |
| Type | V | V | V | | | | | | |
| **Solenoid coils · AC operation** | | | | | | | | | |
| ***Size S2*** | | | | | | | | | |
| 3RT203.-.A, 3RT233.-.A, 3RT243.-.A, 3RT253.-.A | 24 | -- | -- | -- | **3RT2934-5AB01** | | 1 | 1 unit | 41B |
| | 42 | -- | -- | -- | **3RT2934-5AD01** | | 1 | 1 unit | 41B |
| | 48 | -- | -- | -- | **3RT2934-5AH01** | | 1 | 1 unit | 41B |
| | 110 | -- | -- | -- | **3RT2934-5AF01** | | 1 | 1 unit | 41B |
| | 230 | -- | -- | -- | **3RT2934-5AP01** | | 1 | 1 unit | 41B |
| | 400 | -- | -- | -- | **3RT2934-5AV01** | | 1 | 1 unit | 41B |
| | -- | 24 | -- | -- | **3RT2934-5AC21** | | 1 | 1 unit | 41B |
| | -- | 42 | -- | -- | **3RT2934-5AD21** | | 1 | 1 unit | 41B |
| | -- | 48 | -- | -- | **3RT2934-5AH21** | | 1 | 1 unit | 41B |
| | -- | 110 | -- | -- | **3RT2934-5AG21** | | 1 | 1 unit | 41B |
| | -- | 208 | -- | -- | **3RT2934-5AM21** | | 1 | 1 unit | 41B |
| | -- | 220 | -- | -- | **3RT2934-5AN21** | | 1 | 1 unit | 41B |
| | -- | 230 | -- | -- | **3RT2934-5AL21** | | 1 | 1 unit | 41B |
| | 110 | -- | 120 | -- | **3RT2934-5AK61** | | 1 | 1 unit | 41B |
| | 220 | -- | 240 | -- | **3RT2934-5AP61** | | 1 | 1 unit | 41B |
| | -- | -- | 480 | -- | **3RT2934-5AV61** | | 1 | 1 unit | 41B |
| | -- | -- | 600 | -- | **3RT2934-5AT61** | | 1 | 1 unit | 41B |
| | -- | 100 | 110 | -- | **3RT2934-5AG61** | | 1 | 1 unit | 41B |
| | -- | 200 | 220 | -- | **3RT2934-5AN61** | | 1 | 1 unit | 41B |
| | -- | -- | 277 | -- | **3RT2934-5AU61** | | 1 | 1 unit | 41B |
| | -- | 400 | 440 | -- | **3RT2934-5AR61** | | 1 | 1 unit | 41B |
| ***Size S3*** | | | | | | | | | |
| 3RT204.-.A, 3RT234.-.A, 3RT244.-.A, 3RT254.-.A | 24 | -- | -- | -- | **3RT2944-5AB01** | | 1 | 1 unit | 41B |
| | 42 | -- | -- | -- | **3RT2944-5AD01** | | 1 | 1 unit | 41B |
| | 48 | -- | -- | -- | **3RT2944-5AH01** | | 1 | 1 unit | 41B |
| | 110 | -- | -- | -- | **3RT2944-5AF01** | | 1 | 1 unit | 41B |
| | 230 | -- | -- | -- | **3RT2944-5AP01** | | 1 | 1 unit | 41B |
| | 400 | -- | -- | -- | **3RT2944-5AV01** | | 1 | 1 unit | 41B |
| | -- | 24 | -- | -- | **3RT2944-5AC21** | | 1 | 1 unit | 41B |
| | -- | 42 | -- | -- | **3RT2944-5AD21** | | 1 | 1 unit | 41B |
| | -- | 48 | -- | -- | **3RT2944-5AH21** | | 1 | 1 unit | 41B |
| | -- | 110 | -- | -- | **3RT2944-5AG21** | | 1 | 1 unit | 41B |
| | -- | 220 | -- | -- | **3RT2944-5AN21** | | 1 | 1 unit | 41B |
| | -- | 230 | -- | -- | **3RT2944-5AL21** | | 1 | 1 unit | 41B |
| | 110 | -- | 120 | -- | **3RT2944-5AK61** | | 1 | 1 unit | 41B |
| | 220 | -- | 240 | -- | **3RT2944-5AP61** | | 1 | 1 unit | 41B |
| | -- | -- | 480 | -- | **3RT2944-5AV61** | | 1 | 1 unit | 41B |
| | -- | -- | 600 | -- | **3RT2944-5AT61** | | 1 | 1 unit | 41B |
| | -- | 100 | 110 | -- | **3RT2944-5AG61** | | 1 | 1 unit | 41B |
| | -- | 200 | 220 | -- | **3RT2944-5AN61** | | 1 | 1 unit | 41B |
| | -- | 400 | 440 | -- | **3RT2944-5AR61** | | 1 | 1 unit | 41B |
| **Solenoid coils · AC/DC operation, with varistor** | | | | | | | | | |
| ***Size S2*** | | | | | | | | | |
| 3RT203.-.N, 3RT233.-.N | -- | 20 ... 33 | -- | 20 ... 33 | **3RT2934-5NB31** | | 1 | 1 unit | 41B |
| | -- | 30 ... 42 | -- | 30 ... 42 | **3RT2934-5ND31** | | 1 | 1 unit | 41B |
| | -- | 48 ... 80 | -- | 48 ... 80 | **3RT2934-5NE31** | | 1 | 1 unit | 41B |
| | -- | 83 ... 155 | -- | 83 ... 155 | **3RT2934-5NF31** | | 1 | 1 unit | 41B |
| | -- | 175 ... 280 | -- | 175 ... 280 | **3RT2934-5NP31** | | 1 | 1 unit | 41B |
| ***Size S3*** | | | | | | | | | |
| 3RT204.-.N, 3RT234.-.N, 3RT244.-.N, 3RT254.-.N | -- | 20 ... 33 | -- | 20 ... 33 | **3RT2944-5NB31** | | 1 | 1 unit | 41B |
| | -- | 30 ... 42 | -- | 30 ... 42 | **3RT2944-5ND31** | | 1 | 1 unit | 41B |
| | -- | 48 ... 80 | -- | 48 ... 80 | **3RT2944-5NE31** | | 1 | 1 unit | 41B |
| | -- | 83 ... 155 | -- | 83 ... 155 | **3RT2944-5NF31** | | 1 | 1 unit | 41B |
| | -- | 175 ... 280 | -- | 175 ... 280 | **3RT2944-5NP31** | | 1 | 1 unit | 41B |

Notes:

It is only possible to replace the coils on AC contactors with AC coils, and on AC/DC contactors with AC/DC coils.

Coil replacement is not permitted for 3RT20..-.S contactors with fail-safe control.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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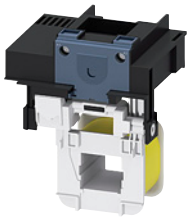
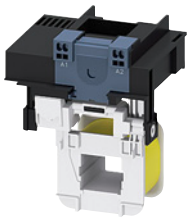
3

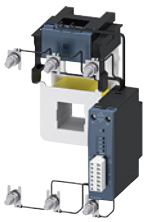
PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

| For contactors | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|
| Size | Type | V | Article No. | Price per PU | Article No. | Price per PU |
| **Withdrawable coils** | | | | | | |
| | | ***Standard operating mechanism for AC/DC*** | | | | |
| **S6** | 3RT105, 3RT145 | 23 ... 26 AC/DC | **3RT1955-5AB31** | | **3RT1955-5AB32** | |
| | | 42 ... 48 AC/DC | **3RT1955-5AD31** | | **3RT1955-5AD32** | |
| | | 110 ... 127 AC/DC | **3RT1955-5AF31** | | **3RT1955-5AF32** | |
| | | 200 ... 220 AC/DC | **3RT1955-5AM31** | | **3RT1955-5AM32** | |
| | | 220 ... 240 AC/DC | **3RT1955-5AP31** | | **3RT1955-5AP32** | |
| | | 240 ... 277 AC/DC | **3RT1955-5AU31** | | **3RT1955-5AU32** | |
| | | 380 ... 420 AC/DC | **3RT1955-5AV31** | | **3RT1955-5AV32** | |
| | | 440 ... 480 AC/DC | **3RT1955-5AR31** | | **3RT1955-5AR32** | |
| | | 500 ... 550 AC/DC | **3RT1955-5AS31** | | **3RT1955-5AS32** | |
| | | 575 ... 600 AC/DC | **3RT1955-5AT31** | | **3RT1955-5AT32** | |
| **S10** | 3RT106, 3RT146 | 23 ... 26 AC/DC | **3RT1965-5AB31** | | **3RT1965-5AB32** | |
| | | 42 ... 48 AC/DC | **3RT1965-5AD31** | | **3RT1965-5AD32** | |
| | | 110 ... 127 AC/DC | **3RT1965-5AF31** | | **3RT1965-5AF32** | |
| | | 200 ... 220 AC/DC | **3RT1965-5AM31** | | **3RT1965-5AM32** | |
| | | 220 ... 240 AC/DC | **3RT1965-5AP31** | | **3RT1965-5AP32** | |
| | | 240 ... 277 AC/DC | **3RT1965-5AU31** | | **3RT1965-5AU32** | |
| | | 380 ... 420 AC/DC | **3RT1965-5AV31** | | **3RT1965-5AV32** | |
| | | 440 ... 480 AC/DC | **3RT1965-5AR31** | | **3RT1965-5AR32** | |
| | | 500 ... 550 AC/DC | **3RT1965-5AS31** | | **3RT1965-5AS32** | |
| | | 575 ... 600 AC/DC | **3RT1965-5AT31** | | **3RT1965-5AT32** | |
| **S12** | 3RT107, 3RT147 | 23 ... 26 AC/DC | **3RT1975-5AB31** | | **3RT1975-5AB32** | |
| | | 42 ... 48 AC/DC | **3RT1975-5AD31** | | **3RT1975-5AD32** | |
| | | 110 ... 127 AC/DC | **3RT1975-5AF31** | | **3RT1975-5AF32** | |
| | | 200 ... 220 AC/DC | **3RT1975-5AM31** | | **3RT1975-5AM32** | |
| | | 220 ... 240 AC/DC | **3RT1975-5AP31** | | **3RT1975-5AP32** | |
| | | 240 ... 277 AC/DC | **3RT1975-5AU31** | | **3RT1975-5AU32** | |
| | | 380 ... 420 AC/DC | **3RT1975-5AV31** | | **3RT1975-5AV32** | |
| | | 440 ... 480 AC/DC | **3RT1975-5AR31** | | **3RT1975-5AR32** | |
| | | 500 ... 550 AC/DC | **3RT1975-5AS31** | | **3RT1975-5AS32** | |
| | | 575 ... 600 AC/DC | **3RT1975-5AT31** | | **3RT1975-5AT32** | |
| | | ***Solid-state operating mechanism for AC/DC with 24 V DC control signal input e.g. for control by PLC*** | | | | |
| **S6** | 3RT105, 3RT145 | 21 ... 27.3 AC/DC | **3RT1955-5NB31** | | **3RT1955-5NB32** | |
| | | 96 ... 127 AC/DC | **3RT1955-5NF31** | | **3RT1955-5NF32** | |
| | | 200 ... 277 AC/DC | **3RT1955-5NP31** | | **3RT1955-5NP32** | |
| **S10** | 3RT106, 3RT146 | 21 ... 27.3 AC/DC | **3RT1965-5NB31** | | **3RT1965-5NB32** | |
| | | 96 ... 127 AC/DC | **3RT1965-5NF31** | | **3RT1965-5NF32** | |
| | | 200 ... 277 AC/DC | **3RT1965-5NP31** | | **3RT1965-5NP32** | |
| **S12** | 3RT107, 3RT147 | 21 ... 27.3 AC/DC | **3RT1975-5NB31** | | **3RT1975-5NB32** | |
| | | 96 ... 127 AC/DC | **3RT1975-5NF31** | | **3RT1975-5NF32** | |
| | | 200 ... 277 AC/DC | **3RT1975-5NP31** | | **3RT1975-5NP32** | |
| | | • **Additionally with PLC relay output and remaining lifetime indicator (RLT)** (withdrawable coil with laterally mounted solid-state module) | | | | |
| **S6** | 3RT105, 3RT145 | 96 ... 127 AC/DC | **3RT1955-5PF31** | | -- | |
| | | 200 ... 277 AC/DC | **3RT1955-5PP31** | | -- | |
| **S10** | 3RT106, 3RT146 | 96 ... 127 AC/DC | **3RT1965-5PF31** | | -- | |
| | | 200 ... 277 AC/DC | **3RT1965-5PP31** | | -- | |
| **S12** | 3RT107, 3RT147 | 96 ... 127 AC/DC | **3RT1975-5PF31** | | -- | |
| | | 200 ... 277 AC/DC | **3RT1975-5PP31** | | -- | |
| | | ***Solid-state operating mechanism for DC with 24 ... 110 V DC control signal input e.g. for control by PLC with extended application range*** | | | | |
| | | (see also contactors for railway applications, page 4/61 onwards) | | | | |
| **S6** | 3RT105..-.X...-0LA2 | 24 DC | -- | | **3RT1955-5XB42** | |
| | | 72 DC | -- | | **3RT1955-5XJ42** | |
| | | 110 DC | -- | | **3RT1955-5XF42** | |
| **S10** | 3RT106..-.X...-0LA2 | 24 DC | -- | | **3RT1965-5XB42** | |
| | | 72 DC | -- | | **3RT1965-5XJ42** | |
| | | 110 DC | -- | | **3RT1965-5XF42** | |
| **S12** | 3RT107..-.X...-0LA2 | 24 DC | -- | | **3RT1975-5XB42** | |
| | | 72 DC | -- | | **3RT1975-5XJ42** | |
| | | 110 DC | -- | | **3RT1975-5XF42** | |


3RT1955-5A.31


3RT1955-5A.32

3RT1955-5N.31


3RT1955-5P.31

3RT1955-5X.42

Note:

In the case of 3RT10..-.S contactors with fail-safe control inputs, removing and replacing the operating mechanism are not permitted.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

| | For contactors | | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | Size | Type | | | | | | |
| **Contacts with fixing parts** | | | | | | | | |
| | ***For contactors with 3 main contacts*** | | | | | | | |
| 3RT294.-6A | **S2**[1] | 3RT2035 | Main contacts (3 NO contacts) for utilization category AC-3 and AC-3e (1 set = 3 movable and 6 fixed contacts with fixing parts) | **3RT2935-6A** | | 1 | 1 unit | 41B |
| | | 3RT2036 | | **3RT2936-6A** | | 1 | 1 unit | 41B |
| | | 3RT2037 | | **3RT2937-6A** | | 1 | 1 unit | 41B |
| | | 3RT2038 | | **3RT2938-6A** | | 1 | 1 unit | 41B |
| | **S3**[1] | 3RT2045 | | **3RT2945-6A** | | 1 | 1 unit | 41B |
| | | 3RT2046 | | **3RT2946-6A** | | 1 | 1 unit | 41B |
| | | 3RT2047 | | **3RT2947-6A** | | 1 | 1 unit | 41B |
| 3RT1954-6A | **S6** | 3RT1054 | | **3RT1954-6A** | | 1 | 1 unit | 41B |
| | | 3RT1055 | | **3RT1955-6A** | | 1 | 1 unit | 41B |
| | | 3RT1056 | | **3RT1956-6A** | | 1 | 1 unit | 41B |
| | **S10** | 3RT1064 | | **3RT1964-6A** | | 1 | 1 unit | 41B |
| | | 3RT1065 | | **3RT1965-6A** | | 1 | 1 unit | 41B |
| | | 3RT1066 | | **3RT1966-6A** | | 1 | 1 unit | 41B |
| | **S12** | 3RT1075 | | **3RT1975-6A** | | 1 | 1 unit | 41B |
| | | 3RT1076 | | **3RT1976-6A** | | 1 | 1 unit | 41B |
| 3RT197.-6A, 3RT1976-6D | **S3** | 3RT2446 | Main contacts (3 NO contacts) for utilization category AC-1 (1 set = 3 movable and 6 fixed contacts with fixing parts) | **3RT2946-6D** | | 1 | 1 unit | 41B |
| | | 3RT2448 | | **3RT2948-6D** | | 1 | 1 unit | 41B |
| | **S6** | 3RT1456 | | **3RT1956-6D** | | 1 | 1 unit | 41B |
| | **S10** | 3RT1466 | | **3RT1966-6D** | | 1 | 1 unit | 41B |
| | | 3RT1467 | | **3RT1967-6D** | | 1 | 1 unit | 41B |
| | **S12** | 3RT1476 | | **3RT1976-6D** | | 1 | 1 unit | 41B |
| | ***For contactors with 4 main contacts*** | | | | | | | |
| 3RT2936-6E | **S2** | 3RT2336 | Main contacts (4 NO contacts) for utilization category AC-1 (1 set = 3 movable and 6 fixed contacts and spare pole with fixing parts) | **3RT2936-6E** | | 1 | 1 unit | 41B |
| | | 3RT2337 | | **3RT2937-6E** | | 1 | 1 unit | 41B |
| **Arc chutes** | | | | | | | | |
| | ***For contactors with 3 main contacts*** | | | | | | | |
| 3RT195.-7. | **S6** | 3RT1054 | Only for contactors with AC/DC coil | **3RT1954-7A** | | 1 | 1 unit | 41B |
| | | 3RT1055 | | **3RT1955-7A** | | 1 | 1 unit | 41B |
| | | 3RT1056 | | **3RT1956-7A** | | 1 | 1 unit | 41B |
| | | 3RT1456 | | **3RT1956-7B** | | 1 | 1 unit | 41B |
| 3RT196.-7. | **S10** | 3RT1064 | | **3RT1964-7A** | | 1 | 1 unit | 41B |
| | | 3RT1065 | | **3RT1965-7A** | | 1 | 1 unit | 41B |
| | | 3RT1066 | | **3RT1966-7A** | | 1 | 1 unit | 41B |
| | | 3RT1466 | | **3RT1966-7B** | | 1 | 1 unit | 41B |
| 3RT197.-7. | **S12** | 3RT1075 | | **3RT1975-7A** | | 1 | 1 unit | 41B |
| | | 3RT1076 | | **3RT1976-7A** | | 1 | 1 unit | 41B |
| | | 3RT1476 | | **3RT1976-7B** | | 1 | 1 unit | 41B |

[1] Switching of the spare contact is not permitted for 3RT20..-.S contactors with fail-safe control.

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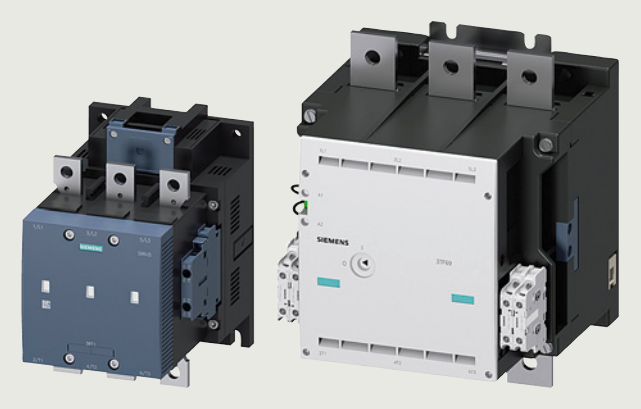
## Overview



3RT12 and 3TF6 vacuum contactors

Our power range of vacuum contactors for switching IE2 motors and highly efficient IE3 and IE4 motors:

- Sizes S10 and S12: 3RT12 up to 250 kW
- Size 14: 3TF6 up to 450 kW

See from page 3/120 onwards

### *Standards*

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1 (auxiliary switches)

Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices (see pages 3/112 and 3/134).

### *Operating conditions*

Vacuum contactors are basically unsuitable for switching DC voltage. Vacuum contactors are only approved **for applications in the frequency range 45 to 60 Hz**. Help with applications > 60 Hz is available from our Technical Support, www.siemens.com/support-request.

### *Protection of the device connections from short circuit, overload and overvoltage*

Appropriate steps must always be taken to protect device connections from overload and short circuit. There are different constraints depending on the type of connection:

Protection of main terminals from short circuit and overload

For information about protection of a single contactor, see the technical product data sheet.

For more information on complete units such as contactors with overload relays or contactors with motor starter protectors as the motor feeder, see Configuration Manual for load feeders.

Protection of auxiliary connections from short circuit and overload

For information about protection of auxiliary contacts, see the technical product data sheet.

Protection of control supply voltage or supply voltage connections from short circuit and overload

First of all, the relevant standards and regulations for configuring control panels and the parts and components installed in them must be taken into account, for example when dimensioning the cables.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state contactor operating mechanisms, closing, closed).

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control panel tip – Fast, reliable selection and dimensioning of an appropriate power supply unit.

Protection of contactors with digital input from short circuit and overload

For the PLC input types according to IEC 60947-4-1 these inputs have a typical rated current of 20 mA.

These inputs can be protected accordingly (for 3RT12..-.N contactors marked with IN+/IN-).

The supply voltage connections A1 - A2 must be protected according to the load characteristics.

For information about power consumption, see the technical product data sheet.

Overvoltage protection at the control supply voltage connection

The 3RT12 contactors are already equipped with coil damping (varistor).

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more detailed information about how damping affects the time response, see Equipment Manual.

Protection from overvoltage in the main circuit

The 3RT12 and 3TF6 vacuum contactors can be retrofitted with varistors for damping switching overvoltages in the coil.

The 3TF6 contactors have integrated damping depending on the version.

Note:

When the 3TF6 contactors are used in an **environment with frequency converters**, the overvoltage damping (if any) must always be removed.

For more information, see Equipment Manual.

### *Connection methods*

Main circuit

3RT12 vacuum contactors are available with busbar connections. Box terminal blocks can be ordered separately as accessories for versions with screw terminals, see page 3/134.

The 3TF6 vacuum contactors are available with busbar connections.

Auxiliary and control circuits

The 3RT12 and 3TF6 contactors are available with screw terminals.

### *Motor protection*

For protection against overload, 3RB2 electronic overload relays (see page 7/114 onwards) can be mounted on the 3RT12 vacuum contactors.

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***Electromagnetic compatibility (EMC)***

The contactors satisfy the conditions for environment A according to IEC 60947-1.

***Contact reliability of the auxiliary contacts***

If voltages ≤ 110 V and currents ≤ 100 mA are to be switched, the auxiliary contacts of the vacuum contactors or 3RH contactor relays should be used as they guarantee a high level of contact reliability.

These auxiliary contacts are particularly suitable for solid-state circuits with currents ≥ 1 mA at a voltage ≥ 17 V.

***Vacuum interrupters***

3RT12 vacuum contactors

The contact gaps of the vacuum contactors are contained in hermetically enclosed vacuum interrupters unlike the 3RT10 contactors – the main contacts operate in air under atmospheric conditions. The particular benefit of vacuum contactors, however, is that their electrical endurance is significantly higher.

They are especially suited to frequent switching in inching/mixed operation, e.g. in crane control systems.

3TF6 vacuum contactors

The switching contacts of the vacuum contactors are contained in hermetically enclosed vacuum interrupters.

With these contactors, the contact erosion of the vacuum interrupters can be checked in the energized state with the help of three white double slides below the connecting bars on the outgoing side.

***Operating mechanism types***

3RT12 vacuum contactors

The contactors can be operated with AC (50 to 60 Hz) as well as with DC.

Two types of solenoid operation are available:

- Standard operating mechanism for AC and DC operation (power consumption reduced from closing to closed), version 3RT12..-.**A**
- Solid-state operating mechanism, version 3RT12..-.**N**

3TF6 vacuum contactors

- Standard version 3TF6.44-.**C**.7 with AC operation
- Version 3TF6.33-.**Q**.7 for AC control supply voltage subject to strong interference:
  Contactors in this version are more robust against EMC interference and are therefore designed for operation in systems with AC control supply voltage that is subject to strong interference. A 3TC44 (3TY7684-0Q..) reversing contactor with a series resistor fitted is used to switch over to holding control. The reversing contactor can be mounted separately. It is connected to the 3TF6 main contactor by means of a pre-assembled connecting cable (approx. 1 m long) with plug-in connectors.
  This version is recommended in the environment of frequency converters and in the case of unshielded control cables.
- 3TF6.33-.**D**.4 contactors with DC control are supplied with a 3TC4417-4A.. reversing contactor and a series resistor.

***Replacing operating mechanisms***

3RT12 vacuum contactors

The operating mechanisms of the vacuum contactors are removable and can be replaced simply by unlocking and pulling them out.

3TF6 vacuum contactors

It is also possible replace the drive components of the vacuum contactor.

***Fitting auxiliary contacts and mounting additional auxiliary switches***

Features in the delivery state

- 3RT12 vacuum contactors:
  These contactors are supplied with two laterally mounted auxiliary switches with two contacts each (2 NO + 2 NC)
- 3TF6 vacuum contactors:
  These contactors are supplied with four laterally mounted auxiliary switches with two contacts each (4 NO + 4 NC). For operating mechanism versions with 3TC (3 NO + 3 NC) series contactor, two auxiliary contacts are already defined.

Expansion possibilities

- 3RT12 vacuum contactors:
  All basic devices can be expanded via auxiliary switches. The permitted configuration must be taken into account.
- Vacuum contactor 3TF6:
  These devices are already fully equipped and no expansion is possible.

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## Technical specifications

Unless otherwise listed on subsequent pages, the technical specifications of the SIRIUS 3RT12 vacuum contactors correspond to those of the 3RT10 basic units; see pages 3/25, and 3/41 to 3/46.

**More information**

Technical specifications, see
https://support.industry.siemens.com/cs/ww/en/ps/16137/td

FAQs, see
https://support.industry.siemens.com/cs/ww/en/ps/16137/faq

System Manual for modular system, see
https://support.industry.siemens.com/cs/ww/en/view/60311318

Equipment Manual, see
https://support.industry.siemens.com/cs/ww/en/view/60306557

Application Manual - Switching devices with IE3 and IE4 motors, see
https://support.industry.siemens.com/cs/ww/en/view/94770820

Configuration Manual for load feeders, see
https://support.industry.siemens.com/cs/ww/en/view/39714188

Configuration Manual for UL, see
https://support.industry.siemens.com/cs/ww/en/view/53433538

Guide of use for contactors in safety applications, see
https://support.industry.siemens.com/cs/ww/en/view/109807687

| | **SIRIUS vacuum contactors** |
|---|---|
| Type | **3RT12** |
| Size | **S10 and S12** |

### Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching low inductive or non-inductive AC loads (AC-1) and motor-driven loads (AC-3 and AC-3e) depending on the breaking current and rated operational voltage. It is assumed that the operating mechanisms are switched arbitrarily and not synchronously with the phase angle of the supply system switching operating mechanism.

The rated operational current $I_e$ complies with utilization category AC-4 (breaking 6 times the rated operational current) and is intended for a contact endurance of approximately 200 000 operating cycles.

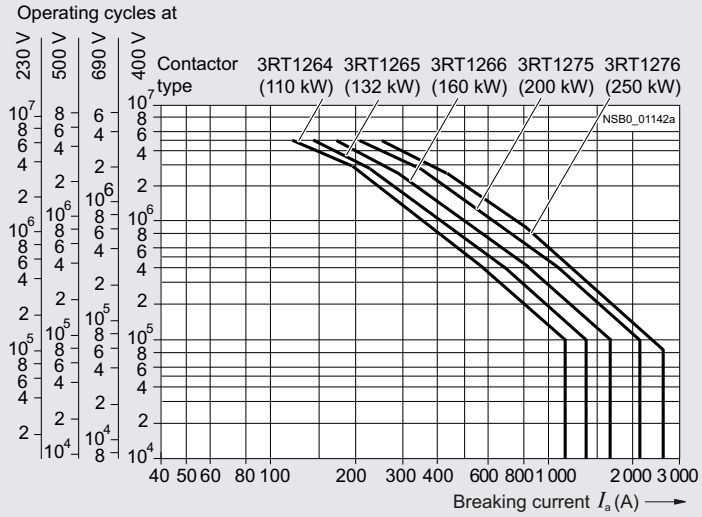
If a shorter contact endurance is sufficient, the rated operational current $I_e$/AC-4 can be increased.

If the contacts are used for mixed operation, i.e. normal switching (breaking the rated operational current according to utilization category AC-3 and AC-3e) in combination with intermittent inching (breaking several times the rated operational current according to utilization category AC-4), the contact endurance can be calculated approximately from the following equation:

$$X = \frac{A}{1 + \frac{C}{100}\left(\frac{A}{B} - 1\right)}$$

Characters in the equation:

- $X$ Contact endurance for mixed operation in operating cycles
- $A$ Contact endurance for normal operation ($I_a = I_e$) in operating cycles
- $B$ Contact endurance for inching ($I_a$ = multiple of $I_e$) in operating cycles
- $C$ Inching operations as a percentage of total switching operations



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| | | | | | |
|---|---|---|---|---|---|
| | | | **Vacuum contactors** | | |
| Type | | | **3TF6** | | |
| Size | | | **14** | | |
| **Rated data of the auxiliary contacts** | | | According to IEC 60947-5-1 | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | | V | 690 | | |
| **Conventional thermal current $I_{th}$ = rated operational current $I_e$/AC-12** | | A | 10 | | |
| **AC load** | | | | | |
| **Rated operational current $I_e$/AC-15/AC-14** | | | | | |
| • At rated operational voltage $U_e$ | - At 24 V | A | 10 | | |
| | - At 110 V | A | 10 | | |
| | - At 125 V | A | 10 | | |
| | - At 220 V | A | 6 | | |
| | - At 230 V | A | 5.6 | | |
| | - At 380 V | A | 4 | | |
| | - At 400 V | A | 3.6 | | |
| | - At 500 V | A | 2.5 | | |
| | - At 660 V | A | 2.5 | | |
| | - At 690 V | A | 2.3 | | |
| **DC load** | | | | | |
| **Rated operational current $I_e$/DC-12** | | | | | |
| • At rated operational voltage $U_e$ | - At 24 V | A | 10 | 10 | 10 |
| | - At 60 V | A | 10 | 10 | 10 |
| | - At 110 V | A | 3.2 | 3.2 | 3.2 |
| | - At 125 V | A | 2.5 | 2.5 | 2.5 |
| | - At 220 V | A | 0.9 | 0.9 | 0.9 |
| | - At 440 V | A | 0.33 | 0.33 | 0.33 |
| | - At 600 V | A | 0.22 | 0.22 | 0.22 |
| **Rated operational current $I_e$/DC-13** | | | | Auxiliary contacts with delayed NC contact: | N S = No specification |
| • At rated operational voltage $U_e$ | - At 24 V | A | 10 | 6 | |
| | - At 60 V | A | 5 | N S | |
| | - At 110 V | A | 1.14 | 0.98 | |
| | - At 125 V | A | 0.98 | N S | |
| | - At 220 V | A | 0.48 | N S | |
| | - At 440 V | A | 0.13 | N S | |
| | - At 600 V | A | 0.07 | 0.07 | |
| **CSA and UL rated data of the auxiliary contacts** | | | | | |
| **Rated voltage, max.** | | V AC | 600 | | |
| **Switching capacity** | | | A 600, P 600 | | |

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## SIRIUS 3RT12 and 3TF6 vacuum contactors

| | |
|---|---|
| | **Vacuum contactors** |
| Type | **3TF6** |
| Size | **14** |

### Electrical endurance of auxiliary contacts

The electrical endurance for utilization category AC-12 or AC-15/AC-14 depends mainly on the breaking current. It is assumed that the operating mechanisms are switched arbitrarily and not synchronously with the phase angle of the supply system switching operating mechanism.

The characteristic curves apply to 230 V AC.

### Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching low inductive or non-inductive AC loads (AC-1) and motor-driven loads (AC-3 and AC-3e) depending on the breaking current and rated operational voltage. It is assumed that the operating mechanisms are switched arbitrarily and not synchronously with the phase angle of the supply system switching operating mechanism.

The rated operational current $I_e$ complies with utilization category AC-4 (breaking 6 times the rated operational current) and is intended for a contact endurance of approximately 200 000 operating cycles.

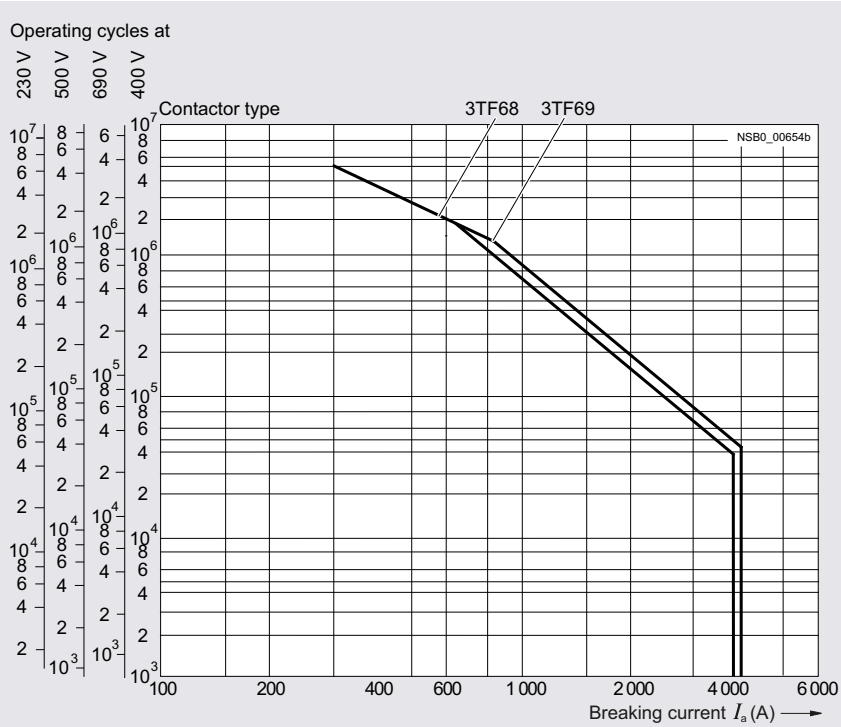
If a shorter contact endurance is sufficient, the rated operational current $I_e$/AC-4 can be increased.

If the contacts are used for mixed operation, i.e. normal switching (breaking the rated operational current according to utilization category AC-3 and AC-3e) in combination with intermittent inching (breaking several times the rated operational current according to utilization category AC-4), the contact endurance can be calculated approximately from the following equation:

$$X = \frac{A}{1 + \frac{C}{100}\left(\frac{A}{B} - 1\right)}$$

Characters in the equation:

- $X$ Contact endurance for mixed operation in operating cycles
- $A$ Contact endurance for normal operation ($I_a = I_e$) in operating cycles
- $B$ Contact endurance for inching ($I_a$ = multiple of $I_e$) in operating cycles
- $C$ Inching operations as a percentage of total switching operations



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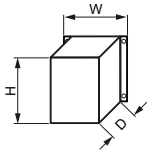
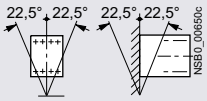
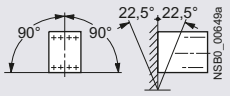
| | | SIRIUS vacuum contactors | | Vacuum contactors | |
|---|---|---|---|---|---|
| Type | | 3RT126 | 3RT127 | 3TF68 | 3TF69 |
| Size | | S10 | S12 | 14 | |
| **General data** | | | | | |
| **Dimensions (W x H x D)**   | mm | 145 x 210 x 206 | 160 x 214 x 225 | 230 x 276 x 237 | 230 x 295 x 237 |
| **Permissible mounting position**<br>The contactors are designed for operation on a vertical mounting surface. | |   | |   | |
| • To easily replace the laterally mounted auxiliary switches it is recommended to maintain a minimum clearance of 30 mm between the contactors. | | No | | Yes | |
| • If mounted at a 90° angle (conducting paths are horizontally above each other), the switching frequency is reduced to 80% compared with the normal values. | | No | | Yes | |
| **Mechanical endurance** | Operating cycles | 10 million | | 5 million | |
| **Electrical endurance** | | | | | |
| Contact endurance of the main contacts | | See page 3/122 | | See page 3/124 | |
| **Rated insulation voltage $U_i$**<br>(pollution degree 3) | kV | 1 | | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 8 | | | |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | V | 690 | | 1 000 | |
| **Mirror contacts**<br>A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact. | | Yes, according to IEC 60947-4-1, Annex F | | Yes, according to IEC 60947-4-1, Annex F<br>One NC contact each must be connected in series for the left and right auxiliary switch respectively. | |
| **Permissible ambient temperature** | | | | | |
| • During operation | °C | -25 ... +60 | | -25 ... +55[1)] | |
| • During storage | °C | -55 ... +80 | | -55 ... +80 | |
| **Electromagnetic compatibility (EMC)** | | See page 3/121 | | | |
| **Short-circuit protection** | | | | | |
| **Main circuit**<br>Fuse links, operational class gG:<br>LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1 | | | | | |
| • Type of coordination "1" | A | 500 | 800 | 1 000 | 1 250 |
| • Type of coordination "2" | A | 500 | 800 | 500 | 630 |
| • Weld-free (test conditions according to IEC 60947-4-1) | A | 400 | 500 | 400 | 500 |
| **Auxiliary circuit**<br>Short-circuit test | | | | | |
| • Fuse links, operational class gG:<br>DIAZED, type 5SB; NEOZED, type 5SE<br>(weld-free protection at $I_k \leq 1$ kA) | A | 10 | | | |
| • Miniature circuit breaker with C characteristic<br>(short-circuit current $I_k \leq 400$ A) | A | 10 | | | |
| Short-circuit protection for contactors with overload relays | | See Configuration Manual for load feeders | | | |

[1)] For ambient temperatures > 55 °C, only 3TF6.33-.Q..-Z A02 contactors (= without connection of the main conducting paths) can be used. However, derating must be taken into account for these contactors too:
- AC-1: $I_e$ = 782 A, 644 operating cycles/h;
- AC-3/AC-3e: Operating range 0.85 to 1.05 x $U_s$, 460 operating cycles/h, mech. service life 5 million operating cycles, lateral clearance 10 mm.

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## SIRIUS 3RT12 and 3TF6 vacuum contactors



| | | | | SIRIUS vacuum contactors | | Vacuum contactors | |
|---|---|---|---|---|---|---|---|
| Type | | | | 3RT126 | 3RT127 | 3TF68 | 3TF69 |
| Size | | | | S10 | S12 | 14 | |
| **Control** | | | | | | | |
| **Solenoid coil operating range** | | AC/DC | | 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$ | | 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$ | |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | | | |
| • Standard operating mechanism (3RT10..-.A) | | | | | | | |
| - AC operation | Closing at $U_{s\,min}/U_{s\,max}$ | | VA | 530/630 | 700/830 | -- | |
| | P.f. | | | 0.9 | | -- | |
| | Closed at $U_{s\,min}/U_{s\,max}$ | | VA | 6.1/7.4 | 7.6/9.2 | -- | |
| | P.f. | | | 0.9 | | -- | |
| - DC operation | Closing at $U_{s\,min}/U_{s\,max}$ | | W | 580/780 | 770/920 | -- | |
| | Closed at $U_{s\,min}/U_{s\,max}$ | | W | 6.8/8.2 | 8.5/10 | -- | |
| • Solid-state operating mechanism (3RT10..-.N/-.P) | | | | | | | |
| - AC operation | Closing at $U_{s\,min}/U_{s\,max}$ | | VA | 420/570 | 560/750 | -- | |
| | P.f. | | | 0.8 | | -- | |
| | Closed at $U_{s\,min}/U_{s\,max}$ | | VA | 5.5/8.5 | 5.6/9 | -- | |
| | P.f. | | | 0.5/0.4 | | -- | |
| - DC operation | Closing at $U_{s\,min}/U_{s\,max}$ | | W | 460/630 | 600/800 | -- | |
| | Closed at $U_{s\,min}/U_{s\,max}$ | | W | 2.8/3.4 | 3/3.6 | -- | |
| • Solid-state operating mechanism | | | | | | | |
| - AC operation (3TF6...-.C) | Closing at $U_{s\,min}/U_{s\,max}$ | | VA | -- | | 1 200/1 850 | 600/950 |
| | P.f. | | | -- | | 1 | 0.98 |
| | Closed at $U_{s\,min}/U_{s\,max}$ | | VA | -- | | 13.5/49 | 12.9/30.6 |
| | P.f. | | | -- | | 0.15 | 0.31 |
| - AC operation (3TF6...-.Q) | Closing at $U_{s\,min}$ | | VA | -- | | 1 000 | 1 150 |
| | P.f. | | | -- | | 0.99 | |
| | Closed at $U_{s\,min}$ | | VA | -- | | 11 | |
| | P.f. | | | -- | | 1 | |
| - DC operation[1] (3TF6...-.D) | Closing at $U_{s\,min}$ | | W | -- | | 1 010 | 960 |
| | Closed at $U_{s\,min}$ | | W | -- | | 28 | 20.6 |
| **PLC control input** according to IEC 61131-2 | | | | Type 2 | | -- | |
| • Rated voltage | | | V DC | 24 | | -- | |
| • Operating range | | | V DC | 17 ... 30 | | -- | |
| • Power consumption | | | mA | ≤ 30 | | -- | |
| **Minimum command duration** For closing | Standard | | ms | -- | | 120 | |
| | Reduced make-time | | ms | -- | | 90 | -- |
| **Minimum interval time** between two ON commands | | | ms | -- | | 100 | 300 |

[1] At 24 V DC; for further voltages, deviations of up to ± 10% are possible.

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| | | | SIRIUS vacuum contactors | | | | | Vacuum contactors | |
|---|---|---|---|---|---|---|---|---|---|
| Type | | | 3RT1264 | 3RT1265 | 3RT1266 | 3RT1275 | 3RT1276 | 3TF68 | 3TF69 |
| Size | | | S10 | | | S12 | | 14 | |
| **Rated data of the main contacts** | | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | | |
| **Utilization category AC-3 and AC-3e** | | | | | | | | | |
| • Rated operational currents $I_e$ | - Up to 690 V | A | 225 | 265 | 300 | 400 | 500 | 630 | 820 (630)[1] |
| | - Up to 1 000 V | A | 225 | 265 | 300 | 400 | 500 | 435 | 580 |
| • Rated power for slip-ring or squirrel-cage motors at 50 and 60 Hz | - At 230 V | kW | 55 | 75 | 90 | 132 | 160 | 200 | 260 (200)[1] |
| | - At 400 V | kW | 110 | 132 | 160 | 200 | 250 | 335 | 450 (335)[1] |
| | - At 500 V | kW | 160 | 160 | 200 | 250 | 335 | -- | -- |
| | - At 690 V | kW | 200 | 250 | 250 | 400 | 500 | 600 | 800 (600)[1] |
| | - At 1 000 V | kW | 315 | 355 | 400 | 560 | 710 | 600 | 800 |
| **Thermal load capacity,** 10 s current | | A | 1 800 | 2 120 | 2 400 | 3 200 | 4 000 | 5 040 | 7 000 |
| **Power loss per main conducting path** at $I_e$/AC-3/AC-3e/400 V | | W | 9 | 12 | 14 | 21 | 32 | 45 | 70 |
| **Utilization category AC-4** (at $I_a$ = 6 x $I_e$) | | | | | | | | | |
| Maximum values: | | | | | | | | | |
| • Rated operational current $I_e$ | - Up to 690 V | A | 195 | 230 | 280 | 350 | 430 | 610 | 690 |
| • Rated power for squirrel-cage motors at 50 Hz and 60 Hz | - At 400 V | kW | 110 | 132 | 160 | 200 | 250 | 355 | 400 |
| The following applies to a contact endurance of about 200 000 operating cycles: | | | | | | | | | |
| • Rated operational currents $I_e$ | - Up to 690 V | A | 97 | 115 | 140 | 175 | 215 | 300 | 360 |
| | - Up to 1 000 V | A | 68 | 81 | 98 | 123 | 151 | 210 | 250 |
| • Rated power for squirrel-cage motors at 50 Hz and 60 Hz | - At 230 V | kW | 30 | 37 | 45 | 56 | 70 | 97 | 110 |
| | - At 400 V | kW | 55 | 65 | 79 | 98 | 122 | 168 | 191 |
| | - At 500 V | kW | 68 | 81 | 98 | 124 | 153 | 210[2] | 250[2] |
| | - At 690 V | kW | 94 | 112 | 138 | 172 | 212 | 278[2] | 335[2] |
| | - At 1 000 V | kW | 95 | 114 | 140 | 183 | 217 | 290[2] | 350[2] |

1) Value applies for utilization category AC-3e.

2) Max. permissible rated operational current $I_e$/AC-4 = $I_e$/AC-3/AC-3e up to 500 V, for reduced contact endurance and reduced switching frequency.

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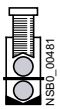
## SIRIUS 3RT12 and 3TF6 vacuum contactors



| | | SIRIUS vacuum contactors | | Vacuum contactors | |
|---|---|---|---|---|---|
| Type | | 3RT126 | 3RT127 | 3TF68 | 3TF69 |
| Size | | S10 | S12 | 14 | |
| **Conductor cross-sections** | | | | | |
| **Main conductors** (1 or 2 conductors can be connected) | | Screw terminals | | | |
| With mounted box terminals | Type | 3RT1966-4G | | -- | |
| • Terminal screws | | M12 (hexagon socket, A/F 5) | | -- | |
| - Tightening torque | Nm | 20 ... 22 (180 ... 195 lb.in) | | -- | |
| Front clamping point connected | | | | | |
| | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 70 ... 240 | | -- | |
| • Finely stranded without end sleeve | $mm^2$ | 70 ... 240 | | -- | |
| • Stranded | $mm^2$ | 95 ... 300 | | -- | |
| • AWG cables, solid or stranded | AWG | 3/0 ... 600 kcmil | | -- | |
| • Ribbon cable conductors (number x width x thickness) | mm | Min. 6 x 9 x 0.8; max. 20 x 24 x 0.5 | | -- | |
| Rear clamping point connected | | | | | |
| | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 120 ... 185 | | -- | |
| • Finely stranded without end sleeve | $mm^2$ | 120 ... 185 | | -- | |
| • Stranded | $mm^2$ | 120 ... 240 | | -- | |
| • AWG cables, solid or stranded | AWG | 250 ... 500 kcmil | | -- | |
| • Ribbon cable conductors (number x width x thickness) | mm | Min. 6 x 9 x 0.8; max. 20 x 24 x 0.5 | | -- | |
| Both clamping points connected | | | | | |
|  | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | Min. 2 x 50, max. 2 x 185 | | -- | |
| • Finely stranded without end sleeve | $mm^2$ | Min. 2 x 50, max. 2 x 185 | | -- | |
| • Stranded | $mm^2$ | Min. 2 x 70, max. 2 x 240 | | -- | |
| • AWG cables, solid or stranded | AWG | Min. 2 x 2/0, max. 1 x 500 kcmil | | -- | |
| • Ribbon cable conductors (number x width x thickness) | mm | Max. 2 x (20 x 24 x 0.5) | | -- | |
| Cable lug connection | | | | | |
| • Finely stranded with cable lug[1] | $mm^2$ | 50 ... 240 | | -- | |
| • Stranded with cable lug[1] | $mm^2$ | 70 ... 240 | | -- | |
| • AWG cables, solid or stranded | AWG | 2/0 ... 500 kcmil | | -- | |
| • Terminal screws | | M10 x 30 (A/F 17) | | -- | |
| - Tightening torque | Nm | 14 ... 24 (124 ... 210 lb.in) | | -- | |
| Busbar connections | | | | | |
| • Finely stranded with cable lug | $mm^2$ | -- | | 50 ... 240 | |
| • Stranded with cable lug | $mm^2$ | -- | | 70 ... 240 | 50 ... 240 |
| • Solid or stranded | AWG | -- | | 2/0 ... 500 MCM | 2/0 ... 500 MCM |
| • Connecting bar (max. width) | mm | 25 | | 50 | 60 ($U_e \leq$ 690 V), 50 ($U_e$ > 690 V) |
| • Terminal screws | | -- | | M10 x 30 | M12 x 40 |
| - Tightening torque | Nm | -- | | 14 ... 24 | 20 ... 35 |
| | lb.in | -- | | 124 ... 210 | 177 ... 310 |
| With box terminal (see page 3/134) | | | | | |
| • Connectable laminated copper bars | | -- | | Yes | |
| • Width | mm | -- | | 15 ... 25 | 15 ... 38 |
| • Max. thickness | mm | -- | | 1 x 26 or 2 x 11 | 1 x 46 or 2 x 18 |
| • Terminal screw | | -- | | A/F 6 (hexagon socket) | A/F 8 (hexagon socket) |
| • Tightening torque | Nm | -- | | 25 ... 40 (221 ... 354 lb.in) | 35 ... 50 (266 ... 443 lb.in) |
| **Auxiliary conductors** (1 or 2 conductors can be connected) | | | | | |
| • Solid | $mm^2$ | 2 x (0.5 ... 1.5)[2]; 2 x (0.75 ... 2.5)[2] according to IEC 60947; max. 2 x (0.75 ... 4) | | 2 x (0.5 ... 1)[2]/2 x (1 ... 2.5)[2] | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[2]; 2 x (0.75 ... 2.5)[2] | | 2 x (0.5 ... 1)[2], 2 x (0.75 ... 2.5)[2] | |
| • Pin cable lug according to DIN 46231 | $mm^2$ | -- | | 2 x (1 ... 1.5) | |
| • AWG cables, solid or stranded | AWG | 2 x (18 ... 14) | | 2 x (18 ... 12) | |
| • Terminal screws | | M3 (Pozidriv size 2) | | -- | |
| - Tightening torque | Nm | 0.8 ... 1.2 (7 ... 10.3 lb.in) | | 0.8 ... 1.4 (7 ... 12 lb.in) | |

[1] When connecting cable lugs according to DIN 46234 for conductor cross-sections larger than 240 $mm^2$ and according to DIN 46235 for conductor cross-sections larger than 185 $mm^2$, the 3RT1966-4EA1 terminal cover is required to maintain the phase clearance, see page 3/112.

[2] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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| | | SIRIUS vacuum contactors | | | | | Vacuum contactors | |
|---|---|---|---|---|---|---|---|---|
| Type | | 3RT1264 | 3RT1265 | 3RT1266 | 3RT1275 | 3RT1276 | 3TF68 | 3TF69 |
| Size | | S10 | | | S12 | | 14 | |
| **SP and UL rated data** | | | | | | | | |
| **Rated insulation voltage** | V AC | 600 | | | | | 600 | |
| **Uninterrupted current** at 40 °C, open and enclosed | A | 330 | | | 540 | | 630 | 820 |
| **Maximum horsepower ratings** (from SP and UL approved values) | | | | | | | | |
| • Rated power for three-phase motors at 60 Hz | | | | | | | | |
| - At 200 V | hp | 60 | 75 | 100 | 125 | 150 | 231 | 290 |
| - At 230 V | hp | 75 | 100 | 125 | 150 | 200 | 266 | 350 |
| - At 460 V | hp | 150 | 200 | 250 | 300 | 400 | 530 | 700 |
| - At 575 V | hp | 200 | 250 | 300 | 400 | 500 | 664 | 860 |
| **NEMA/EEMAC ratings** | | | | | | | | |
| SIZE | hp | -- | | | | | 6 | 7 |
| • Uninterrupted current | | | | | | | | |
| - Open | A | -- | | | | | 600 | 820 |
| - Enclosed | A | -- | | | | | 540 | 810 |
| • Rated power for three-phase motors at 60 Hz | | | | | | | | |
| - At 200 V | hp | -- | | | | | 150 | -- |
| - At 230 V | hp | -- | | | | | 200 | 300 |
| - At 460 V | hp | -- | | | | | 400 | 600 |
| - At 575 V | hp | -- | | | | | 400 | 600 |
| **Short-circuit protection**[1] | kA | 10 | 18 | | | 30 | 100 | |
| • CLASS L fuse | A | 600 | 700 | 800 | 1 000 | 1 200 | 1 600 | |
| • Circuit breakers according to UL 489 | A | 500 | 700 | 800 | 1 000 | 1 200 | On request[1] | |

1) For more information about short-circuit values, e.g. for protection against high short-circuit currents, see Certificate of Compliance for the individual devices.

For the selection and dimensioning of load feeders, see Configuration Manual for UL and the UL guide "Competitive control panels for the North American market".

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3

## Selection and ordering data

***SIRIUS 3RT12 vacuum contactors, 3-pole, 110 to 250 kW***

AC/DC operation

- Standard operating mechanism 3RT12..-.A
- 3RT12..-.N solid-state operating mechanism with 24 V DC control signal input
- For screw fixing
- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections; a connection kit with screws, spring washers and nuts is enclosed.

3RT1264-6AF36

3RT127.-6N.36

| Size | Rated data AC-3 and AC-3e, $t_u$: up to 60 °C | | | | | AC-1, $t_u$: 40 °C | Auxiliary contacts, lateral | | Rated control supply voltage $U_s$ 50/60 Hz AC or DC | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Operational current $I_e$ up to | Rating of three-phase motors at 50 Hz and | | | | Operational current $I_e$ up to | | | | Article No. | Price per PU | | | |
| | 1 000 V | 230 V | **400 V** | 500 V | 690 V | 1 000 V | | | | | | | | |
| | A | kW | **kW** | kW | kW | A | NO | NC | V | | | | | |
| **Standard operating mechanism for AC and DC operation (power consumption reduced from closing to closed)** | | | | | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated at the factory)** | | | | | | | | | | | | | | |
| **S10** | 225 | 55 | **110** | 160 | 200 | 330 | 2 | 2 | 110 ... 127 | **3RT1264-6AF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 220 ... 240 | **3RT1264-6AP36** | | 1 | 1 unit | 41B |
| | 265 | 75 | **132** | 160 | 250 | 330 | 2 | 2 | 110 ... 127 | **3RT1265-6AF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 220 ... 240 | **3RT1265-6AP36** | | 1 | 1 unit | 41B |
| | 300 | 90 | **160** | 200 | 250 | 330 | 2 | 2 | 110 ... 127 | **3RT1266-6AF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 220 ... 240 | **3RT1266-6AP36** | | 1 | 1 unit | 41B |
| **S12** | 400 | 132 | **200** | 250 | 400 | 610 | 2 | 2 | 110 ... 127 | **3RT1275-6AF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 220 ... 240 | **3RT1275-6AP36** | | 1 | 1 unit | 41B |
| | 500 | 160 | **250** | 355 | 500 | 610 | 2 | 2 | 110 ... 127 | **3RT1276-6AF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 220 ... 240 | **3RT1276-6AP36** | | 1 | 1 unit | 41B |
| **Solid-state operating mechanism** | | | | | | | | | | | | | | |
| ***With 24 V DC control signal input e.g. for control by PLC*** | | | | | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | | | | | |
| **S10** | 225 | 55 | **110** | 160 | 200 | 330 | 2 | 2 | 96 ... 127 | **3RT1264-6NF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 200 ... 277 | **3RT1264-6NP36** | | 1 | 1 unit | 41B |
| | 265 | 75 | **132** | 160 | 250 | 330 | 2 | 2 | 96 ... 127 | **3RT1265-6NF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 200 ... 277 | **3RT1265-6NP36** | | 1 | 1 unit | 41B |
| | 300 | 90 | **160** | 200 | 250 | 330 | 2 | 2 | 96 ... 127 | **3RT1266-6NF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 200 ... 277 | **3RT1266-6NP36** | | 1 | 1 unit | 41B |
| **S12** | 400 | 132 | **200** | 250 | 400 | 610 | 2 | 2 | 96 ... 127 | **3RT1275-6NF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 200 ... 277 | **3RT1275-6NP36** | | 1 | 1 unit | 41B |
| | 500 | 160 | **250** | 355 | 500 | 610 | 2 | 2 | 96 ... 127 | **3RT1276-6NF36** | | 1 | 1 unit | 41B |
| | | | | | | | | | 200 ... 277 | **3RT1276-6NP36** | | 1 | 1 unit | 41B |

Other voltages according to page 3/68 on request.

For an overview of the 3RT12 vacuum contactors with mountable accessories, see pages 3/14 and 3/16.

The accessories for the 3RT1 vacuum contactors correspond to those for the basic units of the 3RT1 contactors, see page 3/69 onwards.

For spare parts, see page 3/136.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***3TF6 vacuum contactors, 3-pole, 335 to 450 kW***

AC operation

- For screw fixing
- Main conductors: Busbar connections
- Auxiliary and control conductors: Screw terminals
- With overvoltage protection of the coil (varistor)

3TF68

3TF69

| Size | Rated data AC-3 and AC-3e, $t_u$: up to 55 °C | | | | | AC-1, $t_u$: 40 °C | Auxiliary contacts, lateral | | Rated control supply voltage $U_s$ 50/60 Hz AC | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Operational current $I_e$ up to | Rating of three-phase motors at 50 Hz and | | | | Operational current $I_e$ up to | | | | Article No. | Price per PU | | | |
| | 690 V | 230 V | **400 V** | 690 V | 1 000 V | 690 V | | | | | | | | |
| | A | kW | **kW** | kW | kW | A | NO | NC | V | | | | | |
| **AC operation 50/60 Hz**[1] | | | | | | | | | | | | | | |
| **14** | 630 | 200 | **335** | 600 | -- | 700 | 4 | 4 | 110 ... 132 | **3TF6844-0CF7** | | 1 | 1 unit | 41B |
| | | | | | | | | | 200 ... 240 | **3TF6844-0CM7** | | 1 | 1 unit | 41B |
| | | | | | 600 | 700 | 4 | 4 | 110 ... 132 | **3TF6844-8CF7** | | 1 | 1 unit | 41B |
| | | | | | | | | | 200 ... 240 | **3TF6844-8CM7** | | 1 | 1 unit | 41B |
| **14** | 820 (630)[2] | 260 (200)[2] | **450 (335)**[2] | 800 (600)[2] | -- | 910 | 4 | 4 | 110 ... 132 | **3TF6944-0CF7** | | 1 | 1 unit | 41B |
| | | | | | | | | | 200 ... 240 | **3TF6944-0CM7** | | 1 | 1 unit | 41B |
| | | | | | 800 | 910 | 4 | 4 | 110 ... 132 | **3TF6944-8CF7** | | 1 | 1 unit | 41B |
| | | | | | | | | | 200 ... 240 | **3TF6944-8CM7** | | 1 | 1 unit | 41B |

[1] Please observe the information regarding the use of 3TF6 vacuum contactors in the environment of frequency converters, see page 3/120.

[2] Value applies for utilization category AC-3e.

For an overview of the 3TF6 vacuum contactors with mountable accessories, see page 3/17.

Accessories and spare parts, see pages 3/133 to 3/137.

***Rated control supply voltages, possible on request (change of the 10th and 11th digits of the article number)***

Delivery time on request

| Rated control supply voltage $U_s$ | **Contactor type** | **3TF6844-.C.., 3TF6944-.C..** |
|---|---|---|
| | **Size** | **14** |
| ***AC operation*** | | |
| **Solenoid coils for 50/60 Hz** | | |
| 110 ... 132 V AC | | F7 |
| 200 ... 240 V AC | | M7 |
| 230 ... 277 V AC | | P7 |
| 380 ... 460 V AC | | Q7 |
| 500 ... 600 V AC | | S7 |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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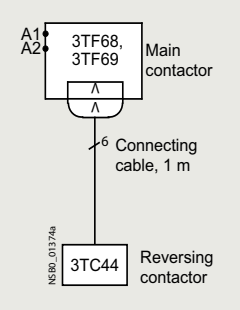
## SIRIUS 3RT12 and 3TF6 vacuum contactors *IE3/IE4* ready AC-3e

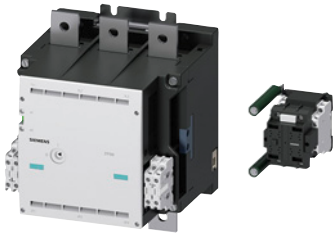
DC operation
and for AC control supply voltage subject to strong interference

- Main conductors: Busbar connections
- Auxiliary and control conductors: Screw terminals
- Power consumption reduced from closing to closed




Circuit diagram
for AC operation, 50/60 Hz,
for AC control supply voltage
subject to strong interference

3TF6833-1D.4
with reversing contactor 3TC4417-0A



3TF6933-1Q.7
with reversing contactor 3TC4417-0B

| Size | Rated data AC-3 and AC-3e, $t_u$: up to 55 °C | | | | | AC-1, $t_u$: 40 °C | Auxiliary contacts, lateral | | Rated control supply voltage $U_s$ 50/60 Hz AC or DC | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Operational current $I_e$ up to | Rating of three-phase motors at 50 Hz and | | | | Operational current $I_e$ up to | | | | | | | | |
| | 690 V | 230 V | **400 V** | 690 V | 1 000 V | 690 V | | | | | | | | |
| | A | kW | **kW** | kW | kW | A | NO | NC | V | | | | | |
| **DC operation**[1] | | | | | | | | | | | | | | |
| **14** | 630 | 200 | **335** | 600 | -- | 700 | 3 | 3 | 24 DC | **3TF6833-1DB4** | | 1 | 1 unit | 41B |
| | | | | | 600 | 700 | 3 | 3 | 24 DC | **3TF6833-8DB4** | | 1 | 1 unit | 41B |
| **14** | 820 (630)[2] | 260 (200)[2] | **450 (335)**[2] | 800 (600)[2] | -- | 910 | 3 | 3 | 24 DC | **3TF6933-1DB4** | | 1 | 1 unit | 41B |
| | | | | | 800 | 910 | 3 | 3 | 24 DC | **3TF6933-8DB4** | | 1 | 1 unit | 41B |
| **AC operation 50/60 Hz**[1][3] **. For AC control supply voltage subject to strong interference** | | | | | | | | | | | | | | |
| **14** | 630 | 200 | **335** | 600 | -- | 700 | 3 | 3 | 110 ... 120 AC | **3TF6833-1QG7** | | 1 | 1 unit | 41B |
| | | | | | | | | | 220 ... 240 AC | **3TF6833-1QL7** | | 1 | 1 unit | 41B |
| | | | | | | | | | 380 ... 420 AC | **3TF6833-1QV7** | | 1 | 1 unit | 41B |
| | | | | | 600 | 700 | 3 | 3 | 220 ... 240 AC | **3TF6833-8QL7** | | 1 | 1 unit | 41B |
| **14** | 820 (630)[2] | 260 (200)[2] | **450 (335)**[2] | 800 (600)[2] | -- | 910 | 3 | 3 | 110 ... 120 AC | **3TF6933-1QG7** | | 1 | 1 unit | 41B |
| | | | | | | | | | 220 ... 240 AC | **3TF6933-1QL7** | | 1 | 1 unit | 41B |
| | | | | | | | | | 380 ... 420 AC | **3TF6933-1QV7** | | 1 | 1 unit | 41B |
| | | | | | 800 | 910 | 3 | 3 | 110 ... 120 AC | **3TF6933-8QG7** | | 1 | 1 unit | 41B |
| | | | | | | | | | 220 ... 240 AC | **3TF6933-8QL7** | | 1 | 1 unit | 41B |

1) Please observe the information regarding the use of 3TF6 vacuum contactors in the environment of frequency converters, see page 3/120.
2) Value applies for utilization category AC-3e.
3) A DC solenoid system with rectifier is used in this version. Varistor integrated. A 3TC4417-.... reversing contactor with pre-assembled connecting cable (approx. 1 m) and plug-in connector is included in the scope of supply of the vacuum contactor.

For an overview of the 3TF6 vacuum contactors with mountable accessories, see page 3/17.

Accessories and spare parts, see pages 3/133 to 3/137.

***Rated control supply voltages, possible on request (change of the 10th and 11th digits of the article number)***

Delivery time on request

| Rated control supply voltage $U_s$ | **Contactor type** | **3TF6833-.D.., 3TF6933-.D..** |
|---|---|---|
| | **Size** | **14** |
| ***DC operation*** | | |
| **Solenoid coils** | | |
| 24 V DC | | B4 |
| 110 V DC | | F4 |
| 125 V DC | | G4 |
| 220 V DC | | M4 |
| 230 V DC | | P4 |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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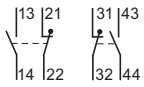
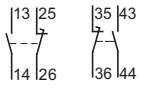
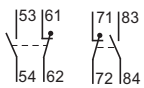
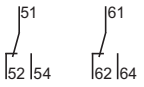
## Selection and ordering data

### *Accessories*

For further accessories for the SIRIUS 3RT12 vacuum contactors, see 3RT10 basic units, page 3/69 onwards.

Overview graphics with mountable accessories:

- 3RT12 contactors, see pages 3/14 and 3/16
- 3TF68 and 3TF69 contactors, see page 3/17

| | For contactors | | Auxiliary contacts | | | | | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Version | | | Connections | | Article No. | Price per PU | | | |
| | Size | Type | NO | NC | NC | Left | Right | | | | | |
| **Auxiliary switches, instantaneous** | | | | | | | | | | | | |
| | | **For lateral mounting** | | | | | | | | | | |
| 3TY7561-1AA00 | 14 | 3TF68, 3TF69 | First auxiliary switch | 1 | 1 | -- |  | **3TY7561-1AA00** | | 1 | 1 unit | 41B |
| 3TY7561-1EA00 | | 3TF68, 3TF69 | First auxiliary switch | 1 | -- | 1 |  | **3TY7561-1EA00** | | 1 | 1 unit | 41B |
| 3TY7561-1KA00 | | 3TF68, 3TF69 | Second auxiliary switch | 1 | 1 | -- |  | **3TY7561-1KA00** | | 1 | 1 unit | 41B |
| | | **For switchover of the coil with DC circuit** | | | | | | | | | | |
| 3TY7681-1G | 14 | 3TF68, 3TF69 | -- | -- | 1 | | -- | **3TY7681-1G** | | 1 | 1 unit | 41B |
| | | ***Solid-state compatible auxiliary switches*** | | | | | | | | | | |
| | | **For lateral mounting** | | | | | | | | | | |
| 5TY7561-1UA00 | 14 | 3TF68, 3TF69 | Second auxiliary switch, left or right 1 CO contact | | | |  | **3TY7561-1UA00** | | 1 | 1 unit | 41B |

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## Accessories and spare parts for SIRIUS 3RT12 and 3TF6 vacuum contactors



| | For contactors Size | Type | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Main conducting path surge suppression modules** | | | | | | | | |
| 3RT1966-1PV3 | S10/ S12 | 3RT12 | For damping overvoltages and protecting motor windings against multiple re-ignition when switching off three-phase motors<br>For connection on the outgoing contactor side (2-T1/4-T2/6-T3), for separate installation<br>Rated operational voltage $U_e$ | | | | | |
| 3RT1966-1PV4 | | | • 690 V AC | **3RT1966-1PV3** | | 1 | 1 unit | 41B |
| | | | • 1 000 V AC | **3RT1966-1PV4** | | 1 | 1 unit | 41B |
| **Box terminal blocks for connecting auxiliary conductors to main terminals** | | | | | | | | |
| | | | For round and ribbon cables<br>Connectable cross-sections of the contactors, see Technical specifications, page 3/128. | | | | | |
| 3RT1966-4G | S10/ S12 | 3RT12 | • Up to 240 $mm^2$, with auxiliary conductor connection up to 2.5 $mm^2$ | **3RT1966-4G** | | 1 | 1 unit | 41B |
| **Surge suppressors** | | | | | | | | |
| 3TX7572-3. | 14 | 3TF68, 3TF69 | **Varistors**<br>AC operation<br>The surge suppressor (varistor) is included in the scope of supply of the 3TF68 and 3TF69 contactors with AC operation.<br>DC operation<br>Varistor for snapping onto the side of the auxiliary switch (includes the peak value of the alternating voltage on the DC side), connection to A1 and A2<br>Rated control supply voltage $U_s$ | | | | | |
| | | | • 24 ... 48 V DC | **3TX7572-3G** | | 1 | 1 unit | 41B |
| | | | • 127 ... 240 V DC | **3TX7572-3J** | | 1 | 1 unit | 41B |
| **Terminal covers** | | | | | | | | |
| 3TX76.6-0A | 14 | 3TF68<br>3TF69 | For protection against inadvertent contact, two units required per contactor (1 set = 2 units) | **3TX7686-0A**<br>**3TX7696-0A** | | 1<br>1 | 1 unit<br>1 unit | 41B<br>41B |
| 3TX7686-0B | | 3TF68 | On the outgoing side combined with overload relay, for protection against inadvertent contact with exposed busbar connections | **3TX7686-0B** | | 1 | 1 unit | 41B |
| **Links for paralleling (star jumpers), 3-pole** | | | | | | | | |
| 3TX7680-0D | 14 | 3TF68, 3TF69 | without connecting terminal (the link for paralleling can be reduced by one pole) | **3TX7680-0D** | | 1 | 1 unit | 41B |
| **Box terminals for laminated copper bars** | | | | | | | | |
| 3TX7570-1E | 14 | 3TF68 | **Without auxiliary conductor connection** (1 set = 3 units)<br>With single covers for protection against inadvertent contact (IEC 60529) | **3TX7570-1E** | | 1 | 1 unit | 41B |
| 3TX7690-1F | | 3TF69 | **With auxiliary conductor connection** (1 set = 3 units)<br>Conductor cross-sections for auxiliary conductors:<br>• Solid 2 x (0.75 ... 2.5) $mm^2$<br>• Finely stranded with end sleeve 2 x (0.5 ... 2.5) $mm^2$<br>• AWG, solid or stranded 2 x (18 ... 12)<br>• Tightening torque 0.8 ... 1.4 Nm (7 ... 12 lb.in) | **3TX7690-1F** | | 1 | 1 unit | 41B |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | For contactors Size | Type | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Locking devices for mechanical interlock** | | | | | | | | |
| 3TX7686-1A | 14 | 3TF68-<br>3TF68 | For two contactors of the same size, for mounting on base plate | **3TX7686-1A** | | 1 | 1 unit | 41B |
| **Base plates** | | | | | | | | |
| | | | ***For reversing contactor assemblies*** | | | | | |
| 3TX7681-1A | 14 | 3TF68-<br>3TF68 | For customer assembly of reversing contactor assemblies | **3TX7681-1A** | | 1 | 1 unit | 41B |
| | | | ***For contactor assemblies for star-delta (wye-delta) starting*** | | | | | |
| 3TX7681-1B | 14 | 3TF68-<br>3TF68-<br>3RT1.7 | For configuring contactor assemblies for star-delta (wye-delta) starting | **3TX7681-1B** | | 1 | 1 unit | 41B |
| **Assembly kits for contactor assemblies** | | | | | | | | |
| | | | ***For reversing contactor assemblies*** | | | | | |
| 3TX7680-1A | 14 | 3TF68-<br>3TF68 | The assembly kit contains:<br>wiring modules on the top and bottom | **3TX7680-1A** | | 1 | 1 unit | 41B |
| | | | ***For contactor assemblies for star-delta (wye-delta) starting*** | | | | | |
| 3TX7680-1B | 14 | 3TF68-<br>3TF68-<br>3RT1.7 | The assembly kit contains:<br>Wiring modules on the top and bottom,<br>Star jumper S12 | **3TX7680-1B** | | 1 | 1 unit | 41B |

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## Accessories and spare parts for SIRIUS 3RT12 and 3TF6 vacuum contactors

### *Spare parts*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

| For contactors | | Rated control supply voltage $U_{s\,min}$ to $U_{s\,max}$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|
| Size | Type | V AC/DC | Article No. | Price per PU | Article No. | Price per PU |
| **Withdrawable coils** | | | | | | |
| | | ***Standard operating mechanism for AC/DC*** | | | | |
| S10 | 3RT126 | 23 ... 26 | **3RT1966-5AB31** | | **--** | |
| | | 42 ... 48 | **3RT1966-5AD31** | | **--** | |
| | | 110 ... 127 | **3RT1966-5AF31** | | **--** | |
| | | 200 ... 220 | **3RT1966-5AM31** | | **--** | |
| | | 220 ... 240 | **3RT1966-5AP31** | | **--** | |
| | | 240 ... 277 | **3RT1966-5AU31** | | **--** | |
| | | 380 ... 420 | **3RT1966-5AV31** | | **--** | |
| | | 440 ... 480 | **3RT1966-5AR31** | | **--** | |
| | | 500 ... 550 | **3RT1966-5AS31** | | **--** | |
| | | 575 ... 600 | **3RT1966-5AT31** | | **--** | |
| S12 | 3RT127 | 23 ... 26 | **3RT1975-5AB31** | | **3RT1975-5AB32** | |
| | | 42 ... 48 | **3RT1975-5AD31** | | **3RT1975-5AD32** | |
| | | 110 ... 127 | **3RT1975-5AF31** | | **3RT1975-5AF32** | |
| | | 200 ... 220 | **3RT1975-5AM31** | | **3RT1975-5AM32** | |
| | | 220 ... 240 | **3RT1975-5AP31** | | **3RT1975-5AP32** | |
| | | 240 ... 277 | **3RT1975-5AU31** | | **3RT1975-5AU32** | |
| | | 380 ... 420 | **3RT1975-5AV31** | | **3RT1975-5AV32** | |
| | | 440 ... 480 | **3RT1975-5AR31** | | **3RT1975-5AR32** | |
| | | 500 ... 550 | **3RT1975-5AS31** | | **3RT1975-5AS32** | |
| | | 575 ... 600 | **3RT1975-5AT31** | | **3RT1975-5AT32** | |
| | | ***Solid-state operating mechanism for AC/DC with 24 V DC control signal input e.g. for control by PLC*** | | | | |
| S10 | 3RT126 | 21 ... 27.3 | **3RT1966-5NB31** | | **--** | |
| | | 96 ... 127 | **3RT1966-5NF31** | | **--** | |
| | | 200 ... 277 | **3RT1966-5NP31** | | **--** | |
| S12 | 3RT127 | 21 ... 27.3 | **3RT1975-5NB31** | | **3RT1975-5NB32** | |
| | | 96 ... 127 | **3RT1975-5NF31** | | **3RT1975-5NF32** | |
| | | 200 ... 277 | **3RT1975-5NP31** | | **3RT1975-5NP32** | |

3RT1975-5A.31

3RT1975-5A.32

3RT1975-5N.31



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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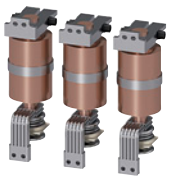
## Accessories and spare parts for SIRIUS 3RT12 and 3TF6 vacuum contactors



| | For contactors | | Version | Rated control supply voltage $U_s$ | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | Size | Type | | V | | | | | |
| **Solenoid coils** | | | | | | | | | |
| | | | **AC operation** | 50/60 Hz AC | | | | | |
| 3TY76.3-0C.. | 14 | 3TF68 | The solenoid coils are fitted as standard with varistors against overvoltage; the coil is supplied with switch-on electronics. | 110 ... 132 | **3TY7683-0CF7** | | 1 | 1 unit | 41B |
| | | | | 200 ... 240 | **3TY7683-0CM7** | | 1 | 1 unit | 41B |
| | | | | 230 ... 277 | **3TY7683-0CP7** | | 1 | 1 unit | 41B |
| | | | | 200 ... 240 | **3TY7683-0CQ7** | | 1 | 1 unit | 41B |
| | | | | 380 ... 460 | **3TY7683-0CS7** | | 1 | 1 unit | 41B |
| | | 3TF69 | | 110 ... 132 | **3TY7693-0CF7** | | 1 | 1 unit | 41B |
| | | | | 200 ... 240 | **3TY7693-0CM7** | | 1 | 1 unit | 41B |
| | | | | 230 ... 277 | **3TY7693-0CP7** | | 1 | 1 unit | 41B |
| | | | | 200 ... 240 | **3TY7693-0CQ7** | | 1 | 1 unit | 41B |
| | | | | 380 ... 460 | **3TY7693-0CS7** | | 1 | 1 unit | 41B |
| | | | **DC operation** | | | | | | |
| 3TY7683-0D.. | 14 | 3TF68 | The solenoid coils are supplied without reversing contactor. | 24 DC | **3TY7683-0DB4** | | 1 | 1 unit | 41B |
| | | | | 110 DC | **3TY7683-0DF4** | | 1 | 1 unit | 41B |
| | | | | 125 DC | **3TY7683-0DG4** | | 1 | 1 unit | 41B |
| | | | | 220 DC | **3TY7683-0DM4** | | 1 | 1 unit | 41B |
| | | | | 230 DC | **3TY7683-0DP4** | | 1 | 1 unit | 41B |
| **Vacuum interrupters** | | | | | | | | | |
| 3RT197.-6V | S10 | 3RT1264<br>3RT1265<br>3RT1266 | Set with three vacuum interrupters with fixing parts | --<br>--<br>-- | **3RT1964-6V**<br>**3RT1965-6V**<br>**3RT1966-6V** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41B<br>41B<br>41B |
| | S12 | 3RT1275<br>3RT1276 | | --<br>-- | **3RT1975-6V**<br>**3RT1976-6V** | | 1<br>1 | 1 unit<br>1 unit | 41B<br>41B |
|  3TY7690-0B | 14 | 3TF68<br>3TF69 | Set with three vacuum interrupters with components<br>Note:<br>In order to ensure reliable operation of the contactors, only **original replacement interrupters** should be used. | --<br>-- | **3TY7680-0B**<br>**3TY7690-0B** | | 1<br>1 | 1 unit<br>1 unit | 41B<br>41B |

| | For contactors | | Version | Rated control supply voltage $U_s$ 50/60 Hz AC | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | Size | Type | | V | | | | | |
| **Solenoid coils for main contactors** | | | | | | | | | |
| | 14 | 3TF68..-.Q | With rectifier bridge | 220 ... 240 | **3TY7683-0QL7** | | 1 | 1 unit | 41B |
| | 14 | 3TF69..-.Q | With rectifier bridge | 110 ... 120 | **3TY7693-0QG7** | | 1 | 1 unit | 41B |
| | | | | 220 ... 240 | **3TY7693-0QL7** | | 1 | 1 unit | 41B |
| **3TC44 reversing contactors** | | | | | | | | | |
| 3TY7684-0Q.7 | 14 | 3TF68..-.Q,<br>3TF69..-.Q | Complete with series resistor, 1 m connecting cable and plug-in connector | 110 ... 120<br>220 ... 240<br>380 ... 420 | **3TY7684-0QG7**<br>**3TY7684-0QL7**<br>**3TY7684-0QV7** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41B<br>41B<br>41B |
| **AC solenoid operating mechanism with coil** | | | | | | | | | |
| 3TY7685-0C.7 | 14 | 3TF6844-.C | Solenoid operating mechanism with coil | 200 ... 240<br>230 ... 276<br>380 ... 420 | **3TY7685-0CM7**<br>**3TY7685-0CP7**<br>**3TY7685-0CS7** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41B<br>41B<br>41B |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3TG10 power relays/miniature contactors



### Overview

***Standards***

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1

***Version***

The 3TG10 power relays/miniature contactors are available with screw terminals or 6.3 mm × 0.8 mm flat connectors.

The 3TG10 miniature contactors are characterized by their width of just 36 mm.

***Protection of the device connections from overvoltage***

The 3TG10 power relays/miniature contactors have an integrated protective circuit against switching overvoltages.

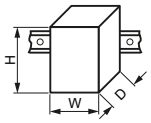
### Application

Because they are hum-free they are suitable for use in household appliances and distribution boards in office and residential areas.

They can also be used for applications where there is little space, such as air conditioners, heating systems, pumps and fans, i.e. for simple electrical controls.

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16186/td | Reference Manual for switching devices, see https://support.industry.siemens.com/cs/ww/en/view/35554359<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16186/faq |

| Type | | | 3TG10 |
|---|---|---|---|
| **General data** | | | |
| **Dimensions (W x H x D)** |  | mm | 36 x 56 x 56 |
| **Endurance** | | | |
| • Mechanical | Operating cycles | | 3 million |
| • Electrical | | | |
| - AC-1 at $I_e$ | Operating cycles | | 0.1 million |
| - AC-3/AC-3e at $I_e$ | Operating cycles | | 0.4 million |
| **Rated insulation voltage $U_i$** (pollution degree 3) | | V | 400 |
| **Rated impulse withstand voltage $U_{imp}$** | | kV | 4 |
| **Protective separation** Between the coil and the contacts according to IEC 60947-1, Annex N | | V | Up to 300 |
| **Permissible ambient temperature** | | | |
| • During operation[1)] | | °C | -25 ... + 55 |
| • During storage | | °C | -50 ... + 80 |
| **Short-circuit protection** | | | |
| **Fuse links,** operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1 | | | |
| • Type of coordination "1" | | A | 25 |
| • Type of coordination "2" | | A | 10 |
| **Miniature circuit breakers**, C characteristic | | A | 10 |
| **Control** | | | |
| **Solenoid coil operating range** | | | 0.85 ... 1.1 x $U_s$ |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | |
| • AC operation, 45 ... 450 Hz | | VA | 4.4 |
| - P.f. | | | 0.9 (hum-free) |
| • DC operation | | W | 4 |
| **Rated data of the main contacts** | | | |
| ***Load rating with AC*** | | | |
| **Utilization category AC-1** | | | |
| • Rated operational current $I_e$ up to 400 V at 55 °C[1)] | | A | 20 for screw terminals, 16 for flat connectors |
| • Rated power $U_e$ for AC loads with p.f. = 1, 230/220 V | | | |
| - For screw terminals | | kW | 7.5 (13 at 400 V) |
| - For flat connectors | | kW | 6 (10 at 400 V) |
| • Minimum conductor cross-section for loads with $I_e$ | | $mm^2$ | 2.5 |

[1)] If the three main conducting paths carry a load of 20 A, the following applies if $I$ > 10 A in the fourth conducting path: Permissible ambient temperature 40 °C.

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| Type | | | | | | **3TG10** |
|---|---|---|---|---|---|---|
| **Rated data of the main contacts (continued)** | | | | | | |
| ***Load rating with AC*** | | | | | | |
| **Utilization category AC-3 and AC-3e** | | | | | | |
| • Operational current for AC-3/AC-3e at $U_e \leq$ 400 V rated value | | | | | A | 8.4/6.4 |
| • Rated power for slip-ring or squirrel-cage motors for AC-3/AC-3e, at 50 and 60 Hz and at $U_e \leq$ 400 V | | | | | kW | 4/3 |
| **Utilization category AC-5a** (permissible nominal impedance: ≥ 0.5 Ω) | | | | | | |
| **Switching of gas discharge lamps** | | | | | | |
| Per main conducting path at 230 V, 50 Hz | | | | | | |
| | Rated power per lamp | Rated operational current per lamp | | | | |
| • Uncompensated | 18 W | 0.37 A | | | Unit(s) | 43 |
| | 36 W | 0.43 A | | | Unit(s) | 37 |
| | 58 W | 0.67 A | | | Unit(s) | 24 |
| • DUO switching | 18 W | 2 x 0.11 A | | | Unit(s) | 2 x 81 |
| | 36 W | 2 x 0.21 A | | | Unit(s) | 2 x 42 |
| | 58 W | 2 x 0.32 A | | | Unit(s) | 2 x 28 |
| **Switching of gas discharge lamps with compensation or ECG** | | | | | | |
| Per main conducting path 230 V, 50 Hz | | | | | | |
| Connection | Rated power per lamp | Capacitor capacitance | Rated operational current per lamp | | | |
| • Shunt compensation | L18 W | 4.5 µF | 0.11 A | | Unit(s) | 15 |
| | L36 W | 4.5 µF | 0.21 A | | Unit(s) | 15 |
| | L58 W | 7 µF | 0.32 A | | Unit(s) | 10 |
| • With ECG (single lamp) | L18 W | 6.8 µF | 0.10 A | | Unit(s) | 39 |
| | L36 W | 6.8 µF | 0.18 A | | Unit(s) | 39 |
| | L58 W | 10 µF | 0.27 A | | Unit(s) | 26 |
| • With ECG (two lamps) | L18 W | 10 µF | 0.18 A | | Unit(s) | 2 x 26 |
| | L36 W | 10 µF | 0.35 A | | Unit(s) | 2 x 26 |
| | L58 W | 22 µF | 0.52 A | | Unit(s) | 2 x 12 |
| **Utilization category AC-5b, switching incandescent lamps** Per main conducting path at 230 V, 50 Hz | | | | | kW | 1.6 |
| ***Load rating with DC*** | | | | | | |
| **Utilization category DC-1, (*L/R* ≤ 15 ms)** | | | | | | |
| • Rated operational currents $I_e$ | | | | | | |
| - 1 conducting path | | | | Up to 24 V | A | 16 |
| | | | | 60 V | A | 6 |
| | | | | 110 V | A | 2 |
| | | | | 220 V/240 V | A | 0.8 |
| - 2 conducting paths in series | | | | Up to 24 V | A | 16 |
| | | | | 60 V | A | 16 |
| | | | | 110 V | A | 6 |
| | | | | 220 V/240 V | A | 1.6 |
| - 3 conducting paths in series | | | | Up to 24 V | A | 18 |
| | | | | 60 V | A | 18 |
| | | | | 110 V | A | 16 |
| | | | | 220 V/240 V | A | 6 |
| **Utilization category DC-3 and DC-5 Shunt-wound and series-wound motors (*L/R* ≤ 15 ms)** | | | | | | |
| • Rated operational currents $I_e$ | | | | | | |
| - 1 conducting path | | | | Up to 24 V | A | 10 |
| | | | | 60 V | A | 0.5 |
| | | | | 110 V | A | 0.15 |
| | | | | 220 V/240 V | A | 0 |
| - 2 conducting paths in series | | | | Up to 24 V | A | 16 |
| | | | | 60 V | A | 5 |
| | | | | 110 V | A | 0.35 |
| | | | | 220 V/240 V | A | 0 |
| - 3 conducting paths in series | | | | Up to 24 V | A | 16 |
| | | | | 60 V | A | 16 |
| | | | | 110 V | A | 10 |
| | | | | 220 V/240 V | A | 1.75 |

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## 3TG10 power relays/miniature contactors

| Type | | | 3TG10 |
|---|---|---|---|
| **Conductor cross-sections** | | | |
| | | | **Screw terminals** |
| • Terminal screws | | | M3 |
| • Finely stranded with end sleeve (DIN 46228 Form A/D/C) | | $mm^2$ | 2 x (0.75 ... 2.5) |
| • Solid | | $mm^2$ | 2 x (1 ... 2.5), 1 x 4 |
| • Permissible opening tool (screwdriver) | | | 3.0 mm x 0.5 mm (3RA2908-1A) or Pozidriv 2 |
| | | | **Flat connectors** |
| • Finely stranded 6.3 mm plug-in sleeve according to DIN 46245/DIN 46247 | | | |
| - 6.3 ... 1 | | $mm^2$ | 0.5 ... 1 |
| - 6.3 ... 2.5 | | $mm^2$ | 1 ... 2.5 |
| **CSA and UL rating (screw terminals)** | | | |
| **Rated insulation voltage** | | V AC | 600 |
| **Uninterrupted current** | Open and enclosed | A | 20 |
| **Maximum horsepower ratings** (from CSA and UL approved values) | | | 1-phase/3-phase |
| • Rated power for three-phase motors at 60 Hz | at 115 V | hp | 0.5/-- |
| | 200 V | hp | 1/3 |
| | 230 V | hp | 1.5/3 |
| | 460 ... 600 V | hp | 0/5 |

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## Selection and ordering data

***AC operation*** ~ ***or DC operation*** ⎓

For screw fixing and snap-on mounting on TH 35 DIN rail

| Rated data Utilization category AC-1 at 55 °C: Operational current $I_e$ up to 400 V | AC-1 at 55 °C: Power of AC loads at 50 Hz and 400 V | AC-3/AC-3e: Operational current $I_e$ up to 400 V[1] | AC-3/AC-3e: Power of AC loads at 50 Hz and 400 V | Auxiliary contacts: Version NO | NC | Rated control supply voltage $U_s$ | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | kW | A | kW | | | V | | | | | |
| **Hum-free · with screw terminals** | | | | | | | **Screw terminals** | | | | |
| 3TG10..-0... | | | | | | | | | | | |
| ***AC operation, 45 ... 450 Hz*** | | | | | | | | | | | |
| 20 | 13 | 8.4/6.4 | 4/3 | 1 | -- | 24 AC | **3TG1010-0AC2** | | 1 | 1 unit | 41H |
| | | | | | | 110 AC | **3TG1010-0AG2** | | 1 | 1 unit | 41H |
| | | | | | | 230 AC | **3TG1010-0AL2** | | 1 | 1 unit | 41H |
| | | | | -- | 1 | 24 AC | **3TG1001-0AC2** | | 1 | 1 unit | 41H |
| | | | | | | 110 AC | **3TG1001-0AG2** | | 1 | 1 unit | 41H |
| | | | | | | 230 AC | **3TG1001-0AL2** | | 1 | 1 unit | 41H |
| ***DC operation*** | | | | | | | | | | | |
| 20 | 13 | 8.4/6.4 | 4/3 | 1 | -- | 24 DC | **3TG1010-0BB4** | | 1 | 1 unit | 41H |
| | | | | -- | 1 | 24 DC | **3TG1001-0BB4** | | 1 | 1 unit | 41H |
| **Hum-free · with 6.3 mm x 0.8 mm flat connectors** | | | | | | | **Flat connectors** | | | | |
| 3TG10..-1... | | | | | | | | | | | |
| ***AC operation, 45 ... 450 Hz*** | | | | | | | | | | | |
| 16 | 10 | 8.4/6.4 | 4/3 | 1 | -- | 24 AC | **3TG1010-1AC2** | | 1 | 1 unit | 41H |
| | | | | | | 110 AC | **3TG1010-1AG2** | | 1 | 1 unit | 41H |
| | | | | | | 230 AC | **3TG1010-1AL2** | | 1 | 1 unit | 41H |
| | | | | -- | 1 | 24 AC | **3TG1001-1AC2** | | 1 | 1 unit | 41H |
| | | | | | | 110 AC | **3TG1001-1AG2** | | 1 | 1 unit | 41H |
| | | | | | | 230 AC | **3TG1001-1AL2** | | 1 | 1 unit | 41H |
| ***DC operation*** | | | | | | | | | | | |
| 16 | 10 | 8.4/6.4 | 4/3 | 1 | -- | 24 DC | **3TG1010-1BB4** | | 1 | 1 unit | 41H |
| | | | | -- | 1 | 24 DC | **3TG1001-1BB4** | | 1 | 1 unit | 41H |

[1] The rated operational currents apply to each pole.

## Accessories

| Version | Max. rated operational currents $I_e$/AC-1 (at 55 °C) of the contactors | Max. conductor cross-sections | **Screw terminals** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | A | $mm^2$ | | | | | |
| **Links for paralleling (insulated star jumpers)[1]** | | | | | | | |
| 3RT1916-4BB31 | | | | | | | |
| **3-pole** | | | | | | | |
| • Without connecting terminal | 16 | -- | **3RT1916-4BA31** | | 1 | 1 unit | 41B |
| • With connecting terminal | 40 | 25 | **3RT1916-4BB31** | | 1 | 1 unit | 41B |
| **4-pole** | | | | | | | |
| • With connecting terminal | 40 | 25 | **3RT1916-4BB41** | | 1 | 1 unit | 41B |

[1] The links for paralleling can be reduced by one pole.
The rated operational currents apply to each pole.

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## SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW



### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius | TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=LoadFeeder |
| Industry Mall, see www.siemens.com/product?3RA23_3RT1 | Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687 |
| Conversion tool, see www.siemens.com/conversion-tool | |

The 3RA23 reversing contactor assemblies in sizes S00 to S3 can be ordered as follows:

- Fully wired and tested, with mechanical and electrical interlock, see page 3/149 onwards.
- For all individual parts for customer assembly, see page 3/69 onwards.

The 3RA23 reversing contactor assemblies have screw terminals or spring-loaded terminals (main and control circuits) and are suitable for screw fixing and snap-on mounting on TH 35 DIN rails.

***Complete 3RA23 reversing contactor assemblies***

The 3RA23 reversing contactor assemblies of size S00 to S3 each consist of two contactors with the same power, with one NC contact (S00) or one NO contact and one NC contact (S0 to S3) in the basic unit. The contactors are mechanically and electrically interlocked (NC contact interlock).

3RU2 overload relays (see page 7/89 onwards) or 3RB3 overload relays (see page 7/102 onwards) for contactor mounting or stand-alone installation, SIMOCODE pro 3UF7 motor management and control devices (see page 10/12 onwards) or 3RN2 thermistor motor protection relays (see page 10/136 onwards) can be used for motor protection.

***3RA23 reversing contactor assemblies with voltage tap-off***

The reversing contactor assemblies with voltage tap-off (see pages 3/149 to 3/152) are required for mounting the function modules for connection to the controller via the IO-Link or AS-Interface communications systems. The 3RA27 function modules must be ordered separately, see page 3/101.

For more information on IO-Link and AS-Interface, see "Industrial communication", page 2/1 onwards.

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## SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW



Sizes S00 to S3

| Rated data for AC-3/AC-3e at AC 50 Hz 400 V | | Size | Type | | |
|---|---|---|---|---|---|
| **Rating** | Operational current | | Contactor | Assembly kit | **Fully wired and tested reversing contactor assemblies** |
| ***P*** | $I_e$ | | (see page 3/47 onwards) | (see page 3/104) | |
| **kW** | A | | | | |
| | | | **Screw terminals** | | |
| **3** | 7 | **S00-S00** | 3RT2015-1...2 | 3RA2913-2AA1 | **3RA2315-8XB30-1...** |
| **4** | 9 | | 3RT2016-1...2 | 3RA2913-2AA1 | **3RA2316-8XB30-1...** |
| **5.5** | 12 | | 3RT2017-1...2 | 3RA2913-2AA1 | **3RA2317-8XB30-1...** |
| **7.5** | 16 | | 3RT2018-1...2 | 3RA2913-2AA1 | **3RA2318-8XB30-1...** |
| **5.5** | 12 | **S0-S0** | 3RT2024-1...0 | 3RA2923-2AA1 | **3RA2324-8XB30-1...** |
| **7.5** | 17 | | 3RT2025-1...0 | 3RA2923-2AA1 | **3RA2325-8XB30-1...** |
| **11** | 25 | | 3RT2026-1...0 | 3RA2923-2AA1 | **3RA2326-8XB30-1...** |
| **15** | 32 | | 3RT2027-1...0 | 3RA2923-2AA1 | **3RA2327-8XB30-1...** |
| **18.5** | 38 | | 3RT2028-1...0 | 3RA2923-2AA1 | **3RA2328-8XB30-1...** |
| **18.5** | 41 | **S2-S2** | 3RT2035-1...0 | 3RA2933-2AA1 | **3RA2335-8XB30-1...** |
| **22** | 51 | | 3RT2036-1...0 | 3RA2933-2AA1 | **3RA2336-8XB30-1...** |
| **30** | 65 | | 3RT2037-1...0 | 3RA2933-2AA1 | **3RA2337-8XB30-1...** |
| **37** | 80 | | 3RT2038-1...0 | 3RA2933-2AA1 | **3RA2338-8XB30-1…** |
| **37** | 80 | **S3-S3** | 3RT2045-1...0 | 3RA2943-2AA1 | **3RA2345-8XB30-1...** |
| **45** | 95 | | 3RT2046-1...0 | 3RA2943-2AA1 | **3RA2346-8XB30-1...** |
| **55** | 110 | | 3RT2047-1...0 | 3RA2943-2AA1 | **3RA2347-8XB30-1...** |
| | | | **Spring-loaded terminals** | | |
| **3** | 7 | **S00-S00** | 3RT2015-2...2 | 3RA2913-2AA2 | **3RA2315-8XB30-2...** |
| **4** | 9 | | 3RT2016-2...2 | 3RA2913-2AA2 | **3RA2316-8XB30-2...** |
| **5.5** | 12 | | 3RT2017-2...2 | 3RA2913-2AA2 | **3RA2317-8XB30-2...** |
| **7.5** | 16 | | 3RT2018-2...2 | 3RA2913-2AA2 | **3RA2318-8XB30-2...** |
| **5.5** | 12 | **S0-S0** | 3RT2024-2...0 | 3RA2923-2AA2 | **3RA2324-8XB30-2...** |
| **7.5** | 17 | | 3RT2025-2...0 | 3RA2923-2AA2 | **3RA2325-8XB30-2...** |
| **11** | 25 | | 3RT2026-2...0 | 3RA2923-2AA2 | **3RA2326-8XB30-2...** |
| **15** | 32 | | 3RT2027-2...0 | 3RA2923-2AA2 | **3RA2327-8XB30-2...** |
| **18.5** | 38 | | 3RT2028-2...0 | 3RA2923-2AA2 | **3RA2328-8XB30-2...** |

### *Article number scheme*

| **Product versions** | | **Article number** |
|---|---|---|
| **SIRIUS reversing contactor assembly** | | **3RA23** □□ – □□□□□□ – □□□□ |
| Size of the contactor | e.g. 4 = S3 | □ |
| Rating dependent on size | e.g. 5 = 37 kW for size S3 | □ |
| Type of overload relay | e.g. 8X = Without | □□ |
| Assembly | e.g. E = Communication-capable installation | □ |
| Interlock | e.g. 3 = Mechanical and electrical | □ |
| Free auxiliary switches | e.g. 0 = S3: 2 NO total | □ |
| Type of electrical connection | e.g. 1 = Screw terminals (main and auxiliary circuits) | □ |
| Operating range/solenoid coil circuit | e.g. A = AC standard/without coil circuit | □ |
| Rated control supply voltage | e.g. L2 = 230 V AC, 50/60 Hz | □□ |
| Example | | **3RA23 4 5 – 8 X E 3 0 – 1 A L 2** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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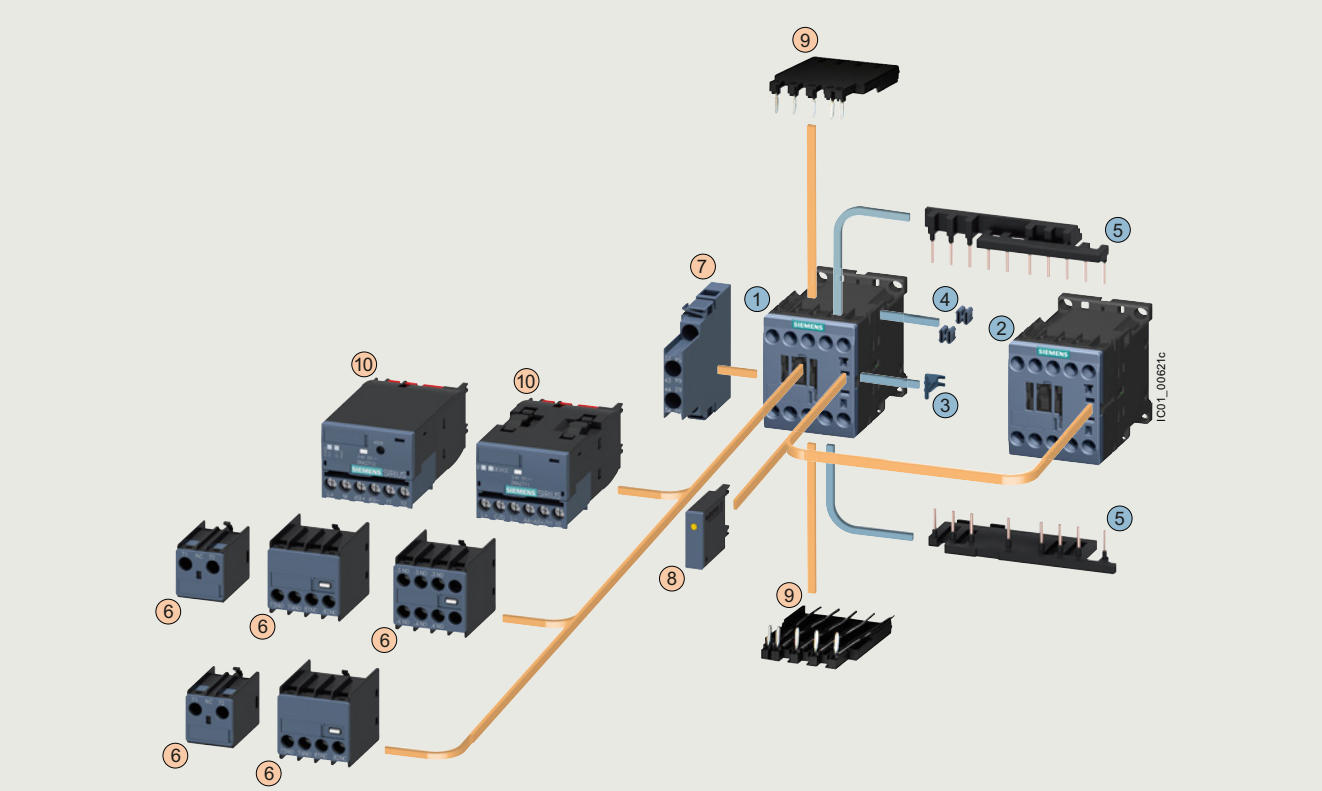
## SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW

***Fully wired and tested reversing contactor assemblies · Size S00-S00 · Up to 7.5 kW***

The figure shows the version with screw terminals




### Mountable accessories (optional)

| To be ordered separately | | Type | Page |
|---|---|---|---|
| 6 | Auxiliary switch, front[1] | 3RH2911 | 3/87 ... 3/89 |
| 7 | Auxiliary switch, lateral | 3RH2921 | 3/91 |
| 8 | Surge suppressor | 3RT2916 | 3/97, 3/98 |
| 9 | Solder pin adapter | 3RT1916-4KA1 | 3/111 |
| 10 | Function module for connection to the control system | 3RA271.-1BA00 | 3/101 |

### Complete reversing contactor assembly

| Individual parts | | Type Q11 | Type Q12 | Page |
|---|---|---|---|---|
| 1 2 | Contactors, 3 kW | 3RT2015 | 3RT2015 | 3/47, 3/52, 3/53 |
| 1 2 | Contactors, 4 kW | 3RT2016 | 3RT2016 | 3/47, 3/52, 3/53 |
| 1 2 | Contactors, 5.5 kW | 3RT2017 | 3RT2017 | 3/47, 3/52, 3/53 |
| 1 2 | Contactors, 7.5 kW | 3RT2018 | 3RT2018 | 3/47, 3/52, 3/53 |
| 3 ... 5 | Assembly kit comprising: | 3RA2913-2AA1 | | 3/104 |
| | 3 Mechanical interlock[2] | | | |
| | 4 Two connecting clips for two contactors[2] | | | |
| | 5 Wiring modules on the top and bottom for connecting the main current paths, electrical interlock included[3], interruptible (NC contact interlock) | | | |

[1] Auxiliary switch according to EN 50005 must be used.

[2] The parts 3 and 4 can only be ordered together as 3RA2912-2H mechanical connectors.

[3] 3RT201. contactors with one NC contact in the basic unit are required for the electrical interlock. An additional NO contact is required for momentary-contact operation.

For complete reversing contactor assemblies, see page 3/149.

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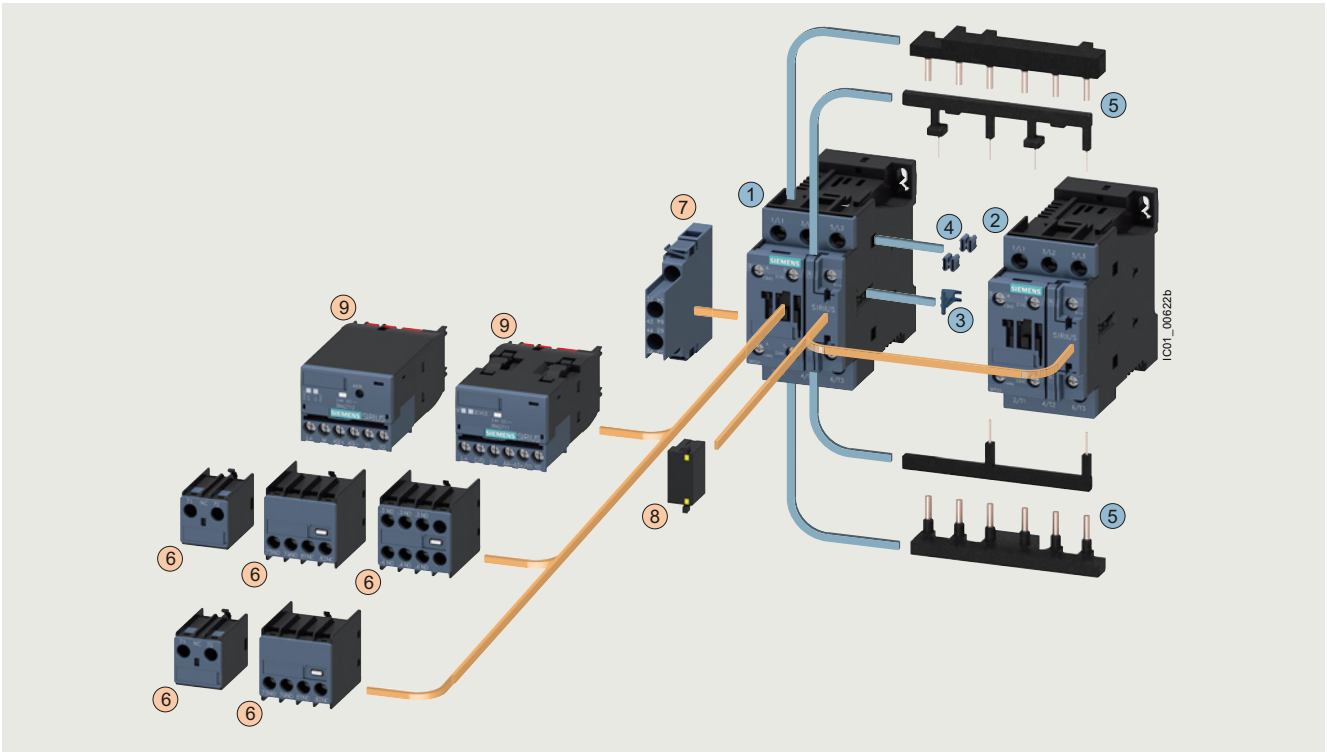
***Fully wired and tested reversing contactor assemblies · Size S0-S0 · Up to 18.5 kW***

The figure shows the version with screw terminals




## Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| (6) Auxiliary switch, front | 3RH2911 | 3/87 ... 3/89 |
| (7) Auxiliary switch, lateral | 3RH2921 | 3/91 |
| (8) Surge suppressor | 3RT2926 | 3/97, 3/98 |
| (9) Function module for connection to the control system | 3RA271.-1BA00 | 3/101 |

## Complete reversing contactor assembly

| Individual parts | | Type Q11 | Type Q12 | Page |
|---|---|---|---|---|
| (1)(2) | Contactors, 5.5 kW | 3RT2024 | 3RT2024 | 3/48, 3/56, 3/57 |
| (1)(2) | Contactors, 7.5 kW | 3RT2025 | 3RT2025 | 3/48, 3/56, 3/57 |
| (1)(2) | Contactors, 11 kW | 3RT2026 | 3RT2026 | 3/48, 3/56, 3/57 |
| (1)(2) | Contactors, 15 kW | 3RT2027 | 3RT2027 | 3/48, 3/56, 3/57 |
| (1)(2) | Contactors, 18.5 kW | 3RT2028 | 3RT2028 | 3/48, 3/56, 3/57 |
| (3) ... (5) | Assembly kit comprising: | 3RA2923-2AA1 | | 3/104 |
| | (3) Mechanical interlock[1)] | | | |
| | (4) Two connecting clips for two contactors[1)] | | | |
| | (5) Wiring modules on the top and bottom for connecting the main current paths, electrical interlock included (NC contact interlock) | | | |

[1)] The parts (3) and (4) can only be ordered together as 3RA2922-2H mechanical connectors.

For complete reversing contactor assemblies, see page 3/150.

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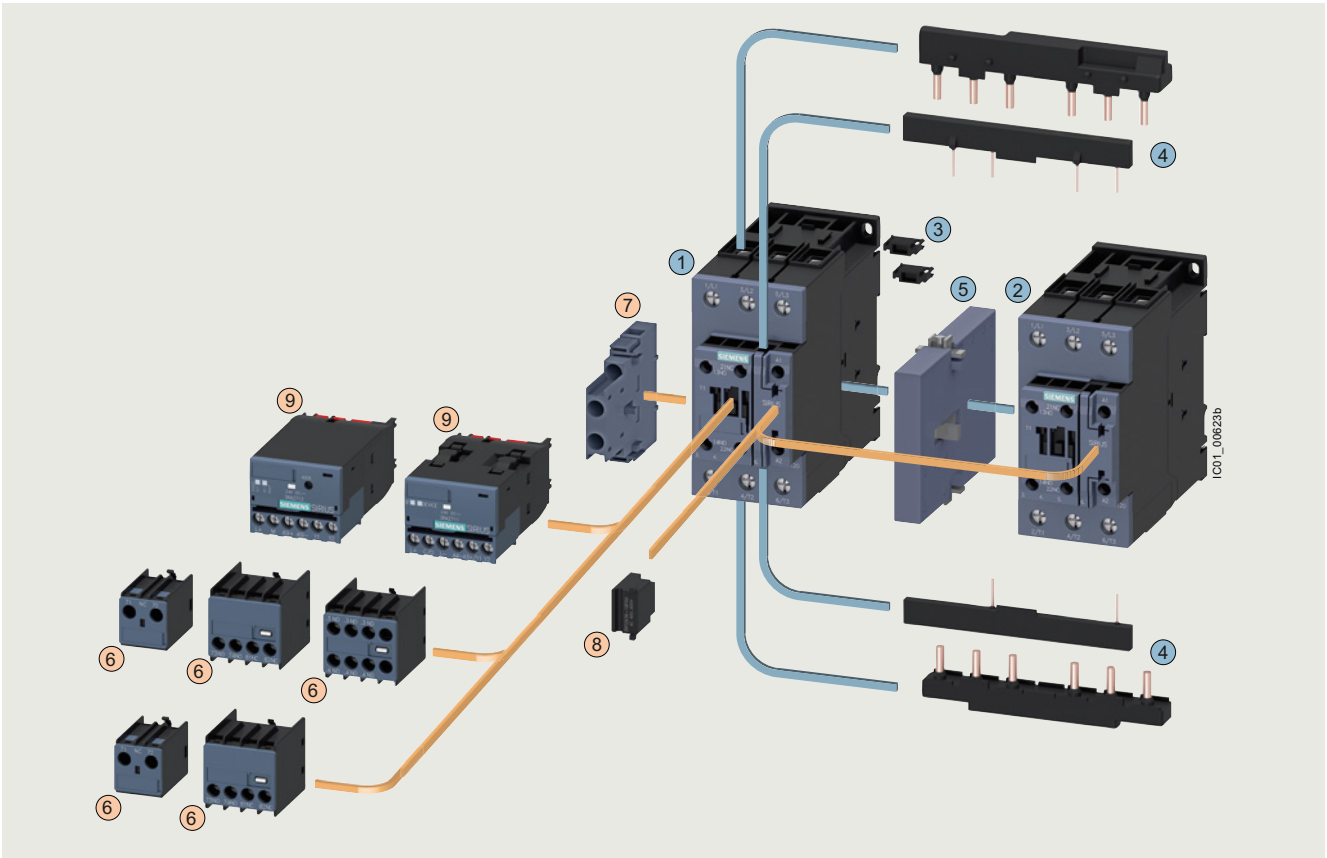
## SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW

***Fully wired and tested reversing contactor assemblies · Size S2-S2 · Up to 37 kW***

The figure shows the version with screw terminals




### Mountable accessories (optional)

| To be ordered separately | | Type | Page |
|---|---|---|---|
| 6 | Auxiliary switch, front | 3RH2911 | 3/87 ... 3/89 |
| 7 | Auxiliary switch, lateral | 3RH2921 | 3/91 |
| 8 | Surge suppressor | 3RT2936 | 3/97, 3/98 |
| 9 | Function module for connection to the control system | 3RA271.-1BA00 | 3/101 |

### Complete reversing contactor assembly

| Individual parts | | Type Q11 | Type Q12 | Page |
|---|---|---|---|---|
| 1 2 | Contactors, 18.5 kW | 3RT2035 | 3RT2035 | 3/50, 3/61 |
| 1 2 | Contactors, 22 kW | 3RT2036 | 3RT2036 | 3/50, 3/61 |
| 1 2 | Contactors, 30 kW | 3RT2037 | 3RT2037 | 3/50, 3/61 |
| 1 2 | Contactors, 37 kW | 3RT2038 | 3RT2038 | 3/50, 3/61 |
| 3 4 | Assembly kit comprising: | 3RA2933-2AA1 | | 3/104 |
| | 3 Two connectors for two contactors | | | |
| | 4 Wiring modules on the top and bottom for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock) | | | |
| 5 | Mechanical interlock | 3RA2934-2B | | 3/108 |

For complete reversing contactor assemblies, see page 3/151.

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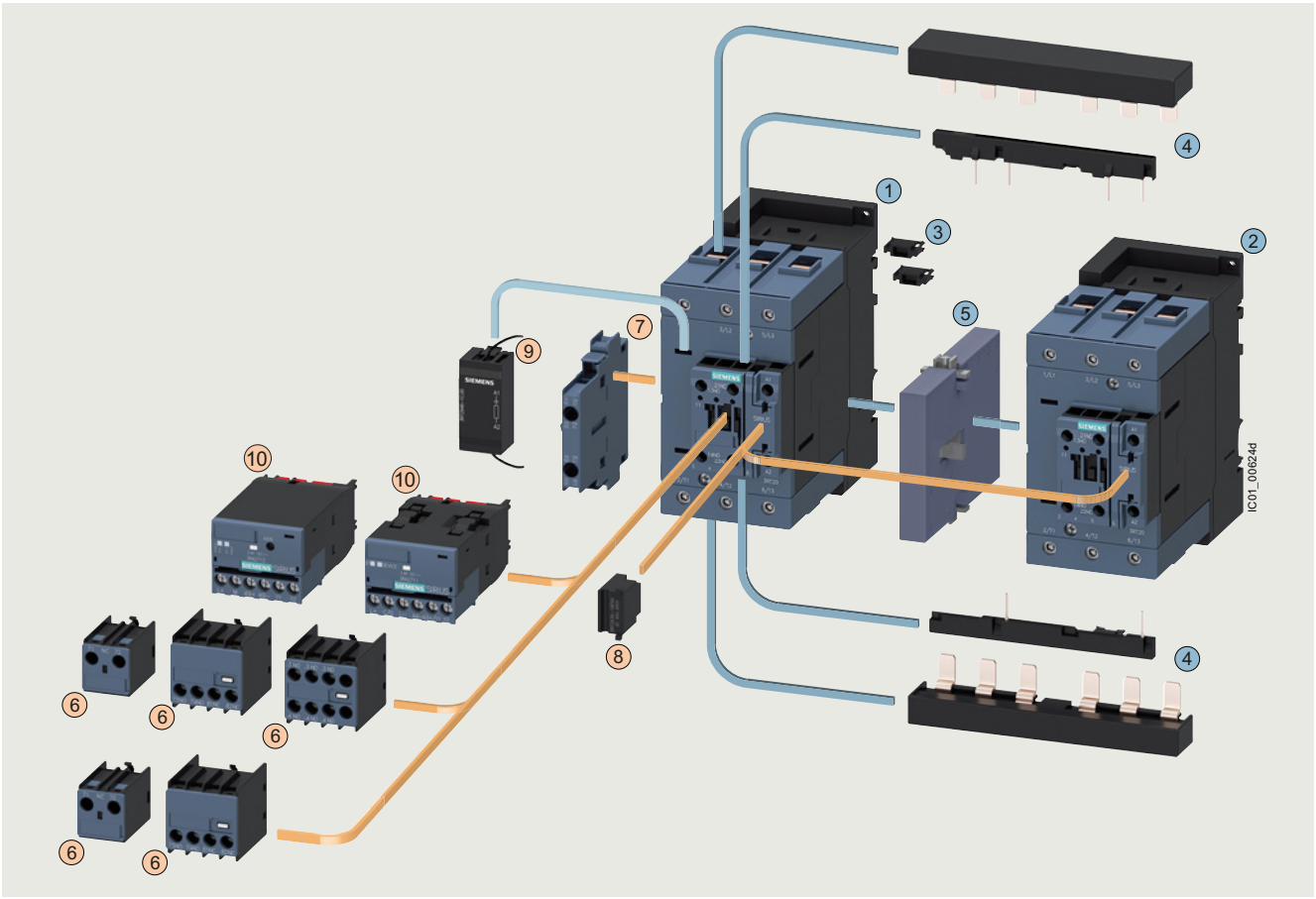
***Fully wired and tested reversing contactor assemblies · Size S3-S3 · Up to 55 kW***

The figure shows the version with screw terminals




## Mountable accessories (optional)

| To be ordered separately | | Type | Page |
|---|---|---|---|
| 6 | Auxiliary switch, front | 3RH2911 | 3/87 ... 3/89 |
| 7 | Auxiliary switch, lateral | 3RH2921 | 3/91 |
| 8 | Surge suppressor (varistor, diode assembly) | 3RT2936 | 3/97, 3/98 |
| 9 | Surge suppressor (RC element) | 3RT2946 | 3/97 |
| 10 | Function module for connection to the control system (the associated module connectors 3RA2711-0EE17 must be ordered separately, see page 3/102) | 3RA271.-1BA00 | 3/101 |

## Complete reversing contactor assembly

| Individual parts | | Type Q11 | Type Q12 | Page |
|---|---|---|---|---|
| 1 2 | Contactors, 37 kW | 3RT2045 | 3RT2045 | 3/51, 3/63 |
| 1 2 | Contactors, 45 kW | 3RT2046 | 3RT2046 | 3/51, 3/63 |
| 1 2 | Contactors, 55 kW | 3RT2047 | 3RT2047 | 3/51, 3/63 |
| 3 4 | Assembly kit comprising: | 3RA2943-2AA1 | | 3/104 |
| | 3 Two connectors for two contactors | | | |
| | 4 Wiring modules on the top and bottom for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock) | | | |
| 5 | Mechanical interlock | 3RA2934-2B | | 3/108 |

For complete reversing contactor assemblies, see page 3/152.

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## SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW



### Benefits

Using wiring kits for reversing contactor assemblies has the following advantages:

- Notable reduction of wiring in the control circuit
- Integrated mechanical interlock for sizes S00 to S3
- Prevention of wiring errors in the main circuit

Connecting combs for screw terminals also result in:

- Prevention of wiring errors in the control circuit
- Reduction of testing costs
- Ready-jumpered actuation of the auxiliary switches and the frame (A2)
- Integrated electrical interlocking

### Accessories

***Selecting the auxiliary switches***

The following points should be noted:

Size S00

- For maintained-contact operation:
  Use contactors with an NC contact in the basic unit for the electrical interlock.
- For momentary-contact operation:
  Use contactors with an NC contact in the basic unit for the electrical interlock; in addition, an auxiliary switch with at least one NO contact for self-locking is required per contactor.

Sizes S0 to S3

- For maintained-contact operation:
  The contactors have two integrated auxiliary contacts (1 NO contact + 1 NC contact); the NC contact can be used for electrical interlocking.
- For momentary-contact operation:
  Electrical interlock as for maintained-contact operation; the NO contact in the basic unit can be used for the latching.

***Surge suppression***

Sizes S00 to S3

All reversing contactor assemblies can be fitted with RC elements or varistors for damping switching overvoltages in the coil.

As with the individual contactors, the surge suppressors can either be plugged onto the top of the contactors (S00) or be plugged into the front of the contactors (S0 to S3).

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16146/td | System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 |
| FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16146/faq | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60306557 |
| | Application Manual - Switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820 |
| | Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687 |

The technical specifications are the same as for the individual contactors (see page 3/25 onwards).

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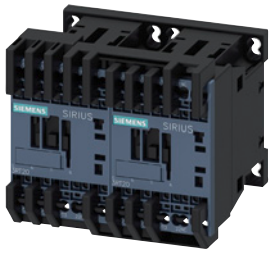
## Selection and ordering data

***Fully wired and tested reversing contactor assemblies*[1] · *Size S00-S00 · Up to 7.5 kW***
***AC operation ~ or DC operation ⎓***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RA231.-8XB30-1A.0

3RA231.-8XE30-1BB4



3RA231.-8XB30-2A.0

| Rated data AC-3 and AC-3e | | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and 60 Hz | | | | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | 230 V | **400 V** | 690 V | | | | | |
| A | kW | **kW** | kW | V | | | | |
| **AC operation, 50/60 Hz** | | | | | | | | |
| 7 | 2.2 | **3** | 4 | 24 AC | **3RA2315-8XB30-1AB0** | | **3RA2315-8XB30-2AB0** | |
| | | | | 110 AC | **3RA2315-8XB30-1AF0** | | **3RA2315-8XB30-2AF0** | |
| | | | | 230 AC | **3RA2315-8XB30-1AP0** | | **3RA2315-8XB30-2AP0** | |
| 9 | 3 | **4** | 5.5 | 24 AC | **3RA2316-8XB30-1AB0** | | **3RA2316-8XB30-2AB0** | |
| | | | | 110 AC | **3RA2316-8XB30-1AF0** | | **3RA2316-8XB30-2AF0** | |
| | | | | 230 AC | **3RA2316-8XB30-1AP0** | | **3RA2316-8XB30-2AP0** | |
| 12 | 3 | **5.5** | 5.5 | 24 AC | **3RA2317-8XB30-1AB0** | | **3RA2317-8XB30-2AB0** | |
| | | | | 110 AC | **3RA2317-8XB30-1AF0** | | **3RA2317-8XB30-2AF0** | |
| | | | | 230 AC | **3RA2317-8XB30-1AP0** | | **3RA2317-8XB30-2AP0** | |
| 16 | 4 | **7.5** | 7.5 | 24 AC | **3RA2318-8XB30-1AB0** | | **3RA2318-8XB30-2AB0** | |
| | | | | 110 AC | **3RA2318-8XB30-1AF0** | | **3RA2318-8XB30-2AF0** | |
| | | | | 230 AC | **3RA2318-8XB30-1AP0** | | **3RA2318-8XB30-2AP0** | |
| **DC operation** | | | | | | | | |
| 7 | 2.2 | **3** | 4 | 24 DC | **3RA2315-8XB30-1BB4** | | **3RA2315-8XB30-2BB4** | |
| 9 | 3 | **4** | 5.5 | 24 DC | **3RA2316-8XB30-1BB4** | | **3RA2316-8XB30-2BB4** | |
| 12 | 3 | **5.5** | 5.5 | 24 DC | **3RA2317-8XB30-1BB4** | | **3RA2317-8XB30-2BB4** | |
| 16 | 4 | **7.5** | 7.5 | 24 DC | **3RA2318-8XB30-1BB4** | | **3RA2318-8XB30-2BB4** | |
| ***With voltage tap-off*** | | | | | | | | |
| 7 | 2.2 | **3** | 4 | 24 DC | **3RA2315-8XE30-1BB4** | | **3RA2315-8XE30-2BB4** | |
| 9 | 3 | **4** | 5.5 | 24 DC | **3RA2316-8XE30-1BB4** | | **3RA2316-8XE30-2BB4** | |
| 12 | 3 | **5.5** | 5.5 | 24 DC | **3RA2317-8XE30-1BB4** | | **3RA2317-8XE30-2BB4** | |
| 16 | 4 | **7.5** | 7.5 | 24 DC | **3RA2318-8XE30-1BB4** | | **3RA2318-8XE30-2BB4** | |

[1] The contactors integrated in the reversing contactor assemblies have no unassigned auxiliary contacts. When used with a voltage tap-off and function module, the auxiliary contacts are unassigned.

Representation of the complete reversing contactor assemblies with optionally mountable accessories, see page 3/144.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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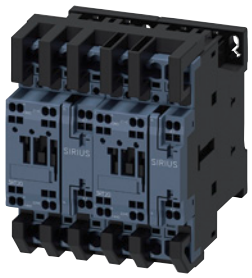
## SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW *IE3/IE4* ready AC-3e

***Fully wired and tested reversing contactor assemblies · Size S0-S0 · Up to 18.5 kW***
***AC operation or DC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RA232.-8XB30-1A.2

3RA2324-8XE30-1BB4



3RA232.-8XB30-2A.2

| Rated data AC-3 and AC-3e | | | | Rated control supply voltage | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and 60 Hz | | | $U_s$ | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | 230 V | **400 V** | 690 V | | | | | |
| A | kW | **kW** | kW | V | | | | |
| **AC operation, 50/60 Hz** | | | | | | | | |
| 12 | 3 | **5.5** | 7.5 | 24 AC | **3RA2324-8XB30-1AC2** | | **3RA2324-8XB30-2AC2** | |
| | | | | 110 AC | **3RA2324-8XB30-1AG2** | | **3RA2324-8XB30-2AG2** | |
| | | | | 230 AC | **3RA2324-8XB30-1AL2** | | **3RA2324-8XB30-2AL2** | |
| 17 | 4 | **7.5** | 11 | 24 AC | **3RA2325-8XB30-1AC2** | | **3RA2325-8XB30-2AC2** | |
| | | | | 110 AC | **3RA2325-8XB30-1AG2** | | **3RA2325-8XB30-2AG2** | |
| | | | | 230 AC | **3RA2325-8XB30-1AL2** | | **3RA2325-8XB30-2AL2** | |
| 25 | 5.5 | **11** | 11 | 24 AC | **3RA2326-8XB30-1AC2** | | **3RA2326-8XB30-2AC2** | |
| | | | | 110 AC | **3RA2326-8XB30-1AG2** | | **3RA2326-8XB30-2AG2** | |
| | | | | 230 AC | **3RA2326-8XB30-1AL2** | | **3RA2326-8XB30-2AL2** | |
| 32 | 7.5 | **15** | 18.5 | 24 AC | **3RA2327-8XB30-1AC2** | | **3RA2327-8XB30-2AC2** | |
| | | | | 110 AC | **3RA2327-8XB30-1AG2** | | **3RA2327-8XB30-2AG2** | |
| | | | | 230 AC | **3RA2327-8XB30-1AL2** | | **3RA2327-8XB30-2AL2** | |
| 38 | 11 | **18.5** | 18.5 | 24 AC | **3RA2328-8XB30-1AC2** | | **3RA2328-8XB30-2AC2** | |
| | | | | 110 AC | **3RA2328-8XB30-1AG2** | | **3RA2328-8XB30-2AG2** | |
| | | | | 230 AC | **3RA2328-8XB30-1AL2** | | **3RA2328-8XB30-2AL2** | |
| **DC operation** | | | | | | | | |
| 12 | 3 | **5.5** | 7.5 | 24 DC | **3RA2324-8XB30-1BB4** | | **3RA2324-8XB30-2BB4** | |
| 17 | 4 | **7.5** | 11 | 24 DC | **3RA2325-8XB30-1BB4** | | **3RA2325-8XB30-2BB4** | |
| 25 | 5.5 | **11** | 11 | 24 DC | **3RA2326-8XB30-1BB4** | | **3RA2326-8XB30-2BB4** | |
| 32 | 7.5 | **15** | 18.5 | 24 DC | **3RA2327-8XB30-1BB4** | | **3RA2327-8XB30-2BB4** | |
| 38 | 11 | **18.5** | 18.5 | 24 DC | **3RA2328-8XB30-1BB4** | | **3RA2328-8XB30-2BB4** | |
| ***With voltage tap-off*** | | | | | | | | |
| 12 | 3 | **5.5** | 7.5 | 24 DC | **3RA2324-8XE30-1BB4** | | **3RA2324-8XE30-2BB4** | |
| 17 | 4 | **7.5** | 11 | 24 DC | **3RA2325-8XE30-1BB4** | | **3RA2325-8XE30-2BB4** | |
| 25 | 5.5 | **11** | 11 | 24 DC | **3RA2326-8XE30-1BB4** | | **3RA2326-8XE30-2BB4** | |
| 32 | 7.5 | **15** | 18.5 | 24 DC | **3RA2327-8XE30-1BB4** | | **3RA2327-8XE30-2BB4** | |
| 38 | 11 | **18.5** | 18.5 | 24 DC | **3RA2328-8XE30-1BB4** | | **3RA2328-8XE30-2BB4** | |

Representation of the complete reversing contactor assemblies with optionally mountable accessories, see page 3/145.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**AC-3e** **IE3/IE4 ready** **SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW**

***Fully wired and tested reversing contactor assemblies · Size S2-S2 · Up to 37 kW***
***AC operation or AC/DC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RA233.-8XB30-1A.2

3RA233.-8XE30-1NB3

| Rated data AC-3 and AC-3e | | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and 60 Hz | | | | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | 230 V | **400 V** | 690 V | | | | | |
| A | kW | **kW** | kW | V | | | | |
| **AC operation, 50/60 Hz** | | | | | | | | |
| 41 | 11 | **18.5** | 22 | 110 AC | **3RA2335-8XB30-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2335-8XB30-1AL2** | | **--** | |
| 51 | 15 | **22** | 22 | 110 AC | **3RA2336-8XB30-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2336-8XB30-1AL2** | | **--** | |
| 65 | 18.5 | **30** | 37 | 110 AC | **3RA2337-8XB30-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2337-8XB30-1AL2** | | **--** | |
| 80 | 22 | **37** | 45 | 110 AC | **3RA2338-8XB30-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2338-8XB30-1AL2** | | **--** | |
| **AC/DC operation** | | | | | | | | |
| ***With integrated coil circuit (varistor integrated in electronics at the factory)*** | | | | | | | | |
| 41 | 11 | **18.5** | 22 | 20 ... 33 AC/DC | **3RA2335-8XB30-1NB3** | | **--** | |
| 51 | 15 | **22** | 22 | 20 ... 33 AC/DC | **3RA2336-8XB30-1NB3** | | **--** | |
| 65 | 18.5 | **30** | 37 | 20 ... 33 AC/DC | **3RA2337-8XB30-1NB3** | | **--** | |
| 80 | 22 | **37** | 45 | 20 ... 33 AC/DC | **3RA2338-8XB30-1NB3** | | **--** | |
| ***With voltage tap-off*** | | | | | | | | |
| 41 | 11 | **18.5** | 22 | 20 ... 33 AC/DC | **3RA2335-8XE30-1NB3** | | **--** | |
| 51 | 15 | **22** | 22 | 20 ... 33 AC/DC | **3RA2336-8XE30-1NB3** | | **--** | |
| 65 | 18.5 | **30** | 37 | 20 ... 33 AC/DC | **3RA2337-8XE30-1NB3** | | **--** | |
| 80 | 22 | **37** | 45 | 20 ... 33 AC/DC | **3RA2338-8XE30-1NB3** | | **--** | |

Representation of the complete reversing contactor assemblies with optionally mountable accessories, see page 3/146.

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## SIRIUS 3RA23 reversing contactor assemblies, up to 55 kW *IE3/IE4 ready* AC-3e

***Fully wired and tested reversing contactor assemblies · Size S3-S3 · Up to 55 kW***
***AC operation ~ or AC/DC operation ≂***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RA234.-8XB30-1A.2

3RA234.-8XE30-1NB3

| Rated data AC-3 and AC-3e | | | | Rated control supply voltage $U_s$ [1] | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and 60 Hz | | | | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | 230 V | **400 V** | 690 V | | | | | |
| A | kW | **kW** | kW | V | | | | |
| **AC operation, 50/60 Hz** | | | | | | | | |
| 80 | 22 | **37** | 55 | 110 AC | **3RA2345-8XB30-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2345-8XB30-1AL2** | | **--** | |
| 95 | 22 | **45** | 75 | 110 AC | **3RA2346-8XB30-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2346-8XB30-1AL2** | | **--** | |
| 110 | 30 | **55** | 75 | 110 AC | **3RA2347-8XB30-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2347-8XB30-1AL2** | | **--** | |
| **AC/DC operation** | | | | | | | | |
| ***With integrated coil circuit (varistor integrated in electronics at the factory)*** | | | | | | | | |
| 80 | 22 | **37** | 55 | 20 ... 33 AC/DC | **3RA2345-8XB30-1NB3** | | **--** | |
| 95 | 22 | **45** | 75 | 20 ... 33 AC/DC | **3RA2346-8XB30-1NB3** | | **--** | |
| 110 | 30 | **55** | 75 | 20 ... 33 AC/DC | **3RA2347-8XB30-1NB3** | | **--** | |
| ***With voltage tap-off*** [1] | | | | | | | | |
| 80 | 22 | **37** | 55 | 20 ... 33 AC/DC | **3RA2345-8XE30-1NB3** | | **--** | |
| 95 | 22 | **45** | 75 | 20 ... 33 AC/DC | **3RA2346-8XE30-1NB3** | | **--** | |
| 110 | 30 | **55** | 75 | 20 ... 33 AC/DC | **3RA2347-8XE30-1NB3** | | **--** | |

[1] The associated module connectors 3RA2711-0EE17 for the 3RA271. function modules must be ordered separately, see page 3/102.

Representation of the complete reversing contactor assemblies with optionally mountable accessories, see page 3/147.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

The individual parts for the reversing contactor assemblies for customer assembly must be ordered separately.

- 3RT1 contactors (see page 3/64 onwards) and 3RT12 and 3TF6 vacuum contactors (see page 3/130 onwards):
  The operating times of the individual contactors are rated in such a way that no overlapping of the contact connection and the arcing time between two contactors can occur on reversing, provided they are interlocked by way of their auxiliary switches (NC contact interlock) and the mechanical interlock.
  For assemblies with AC operation and 50/60 Hz, a dead interval of 50 ms must be provided when used with voltages over 500 V; a dead interval of 30 ms is recommended for use with voltages up to and including 400 V. These dead times do not apply to assemblies with DC operation.
  The operating times of the individual contactors are not affected by the mechanical interlock.
- Mechanical interlocks
  - 3RT1 contactors: see page 3/108
  - 3TF68 vacuum contactors: Locking device for mechanical interlock, see page 3/135.
- Wiring kits consisting of wiring modules on the top and bottom
  - 3RT1 contactors: see page 3/104
  - 3TF68 vacuum contactors: see page 3/135
- Base plates
  - 3RT1 contactors: see page 3/113
  - 3TF68 vacuum contactors: see page 3/135

Additional components

- For momentary-contact operation: auxiliary switch (NO contact) for self-locking
- 3RB2 overload relays (see page 7/114 onwards), SIMOCODE pro 3UF7 motor management and control devices (see page 10/12 onwards) or 3RN2 thermistor motor protection relays (see page 10/136 onwards) can be used for overload protection.

**More information**

Homepage, see www.siemens.com/sirius

Industry Mall, see www.siemens.com/product?3RA23_3RT1

Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687

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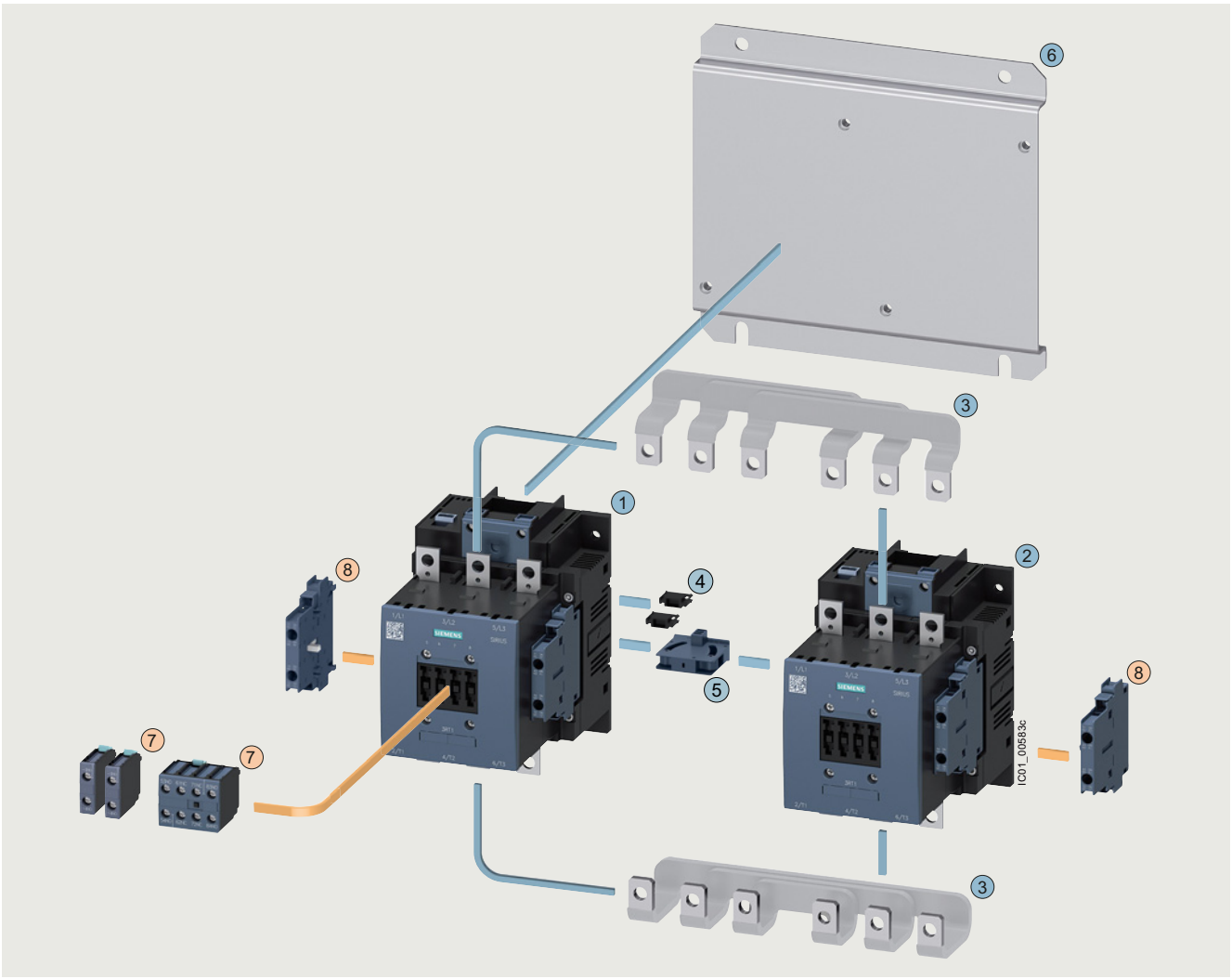
## Reversing contactor assemblies consisting of SIRIUS 3RT1 and 3TF6 contactors, up to 335 kW

***Reversing contactor assemblies for customer assembly · Size S6-S6 · Up to 90 kW***




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| ⑦ Auxiliary switch, front | 3RH1921 | 3/90 |
| ⑧ Auxiliary switch, lateral | 3RH1921 | 3/92 |

### Reversing contactor assembly for customer assembly

| Individual parts | Type Q11 | Type Q12 | Page |
|---|---|---|---|
| ①② Contactors, 55 kW | 3RT1054 | 3RT1054 | 3/64 ... 3/66 |
| ①② Contactors, 75 kW | 3RT1055 | 3RT1055 | 3/64 ... 3/66 |
| ①② Contactors, 90 kW | 3RT1056 | 3RT1056 | 3/64 ... 3/66 |
| ③ Assembly kit consisting of: Wiring modules on the top and bottom for contactors without box terminals for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock) | 3RA1953-2A | | 3/104 |
| ④ Two connectors for two contactors | 3RA1932-2D | | 3/108 |
| ⑤ Mechanical interlock | 3RA1954-2A | | 3/108 |
| ⑥ Base plate for reversing contactor assemblies | 3RA1952-2A | | 3/113 |

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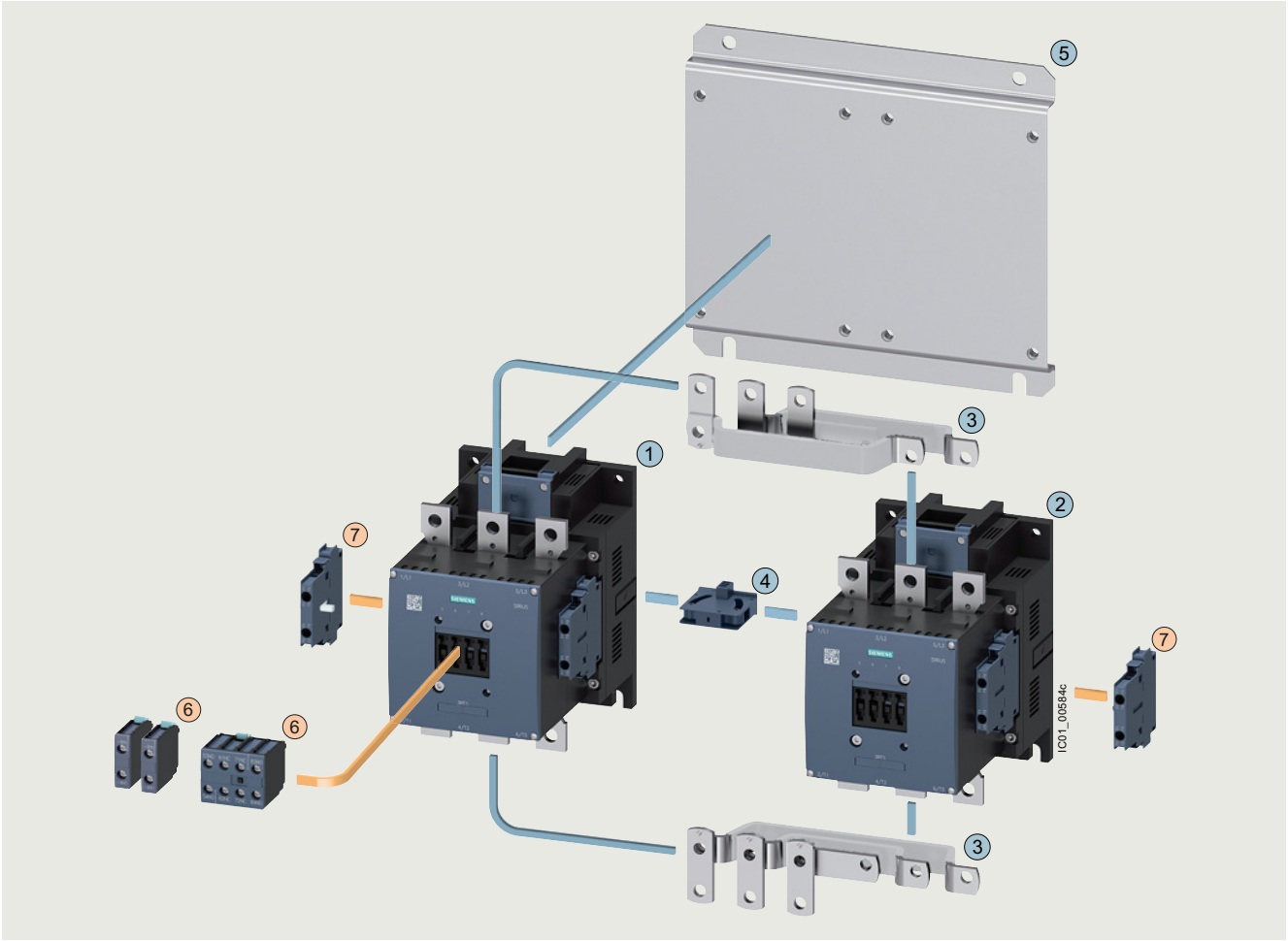
## Reversing contactor assemblies consisting of SIRIUS 3RT1 and 3TF6 contactors, up to 335 kW

***Reversing contactor assemblies for customer assembly · Size S10-S10 · Up to 160 kW***




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| ⑥ Auxiliary switch, front | 3RH1921 | 3/90 |
| ⑦ Auxiliary switch, lateral | 3RH1921 | 3/92 |

### Reversing contactor assembly for customer assembly

| Individual parts | | Type Q11 | Type Q12 | Page |
|---|---|---|---|---|
| ①② | Contactors, 110 kW | 3RT1.64 | 3RT1.64 | 3/64 ... 3/66, 3/130 |
| ①② | Contactors, 132 kW | 3RT1.65 | 3RT1.65 | 3/64 ... 3/66, 3/130 |
| ①② | Contactors, 160 kW | 3RT1.66 | 3RT1.66 | 3/64 ... 3/66, 3/130 |
| ③ | Assembly kit consisting of: Wiring modules on the top and bottom for contactors without box terminals for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock) | 3RA1963-2A | | 3/104 |
| ④ | Mechanical interlock | 3RA1954-2A | | 3/108 |
| ⑤ | Base plate for reversing contactor assemblies | 3RA1962-2A | | 3/113 |

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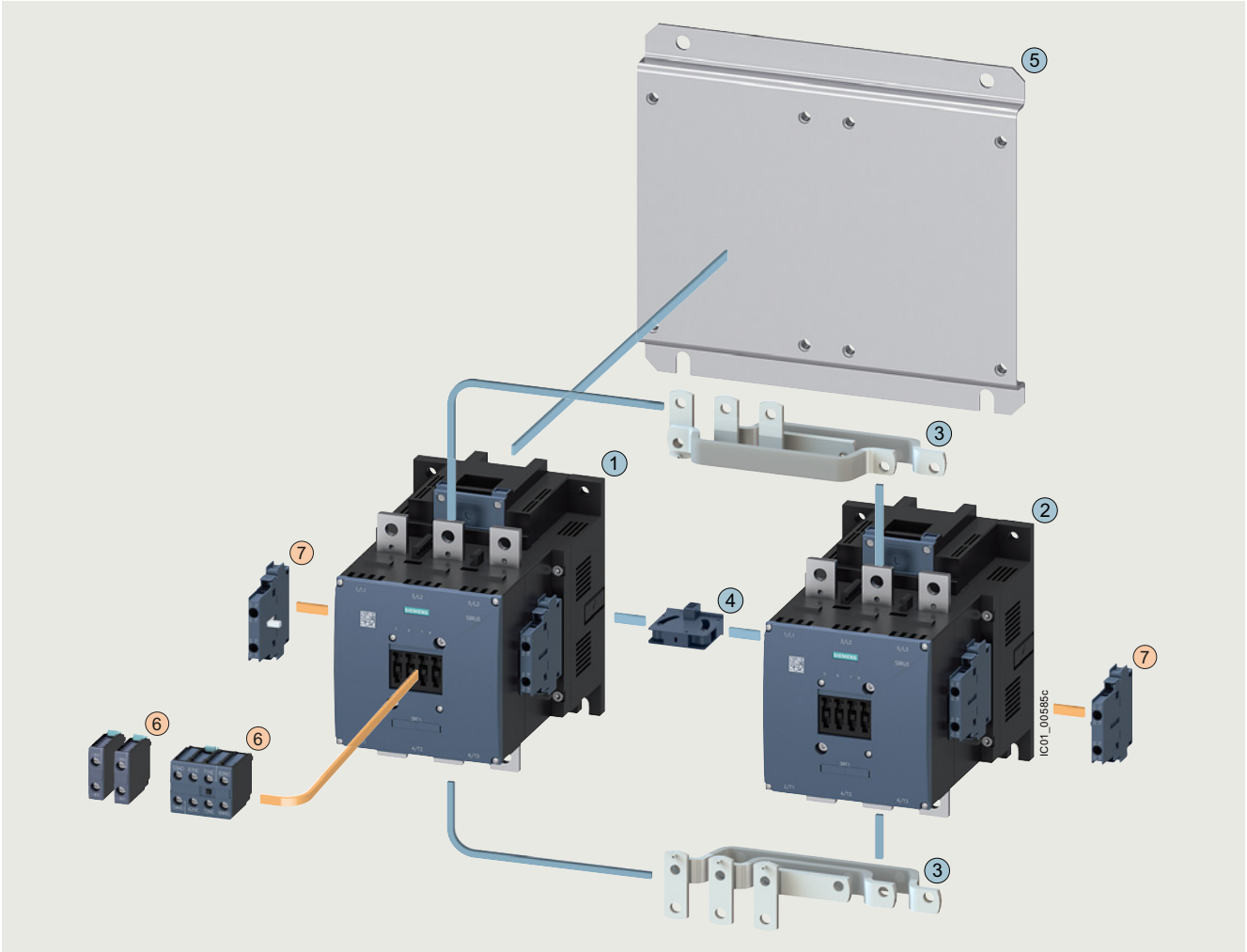
## Reversing contactor assemblies consisting of SIRIUS 3RT1 and 3TF6 contactors, up to 335 kW

***Reversing contactor assemblies for customer assembly · Size S12-S12 · Up to 250 kW***




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| ⑥ Auxiliary switch, front | 3RH1921 | 3/90 |
| ⑦ Auxiliary switch, lateral | 3RH1921 | 3/92 |

### Reversing contactor assembly for customer assembly

| Individual parts | Type Q11 | Type Q12 | Page |
|---|---|---|---|
| ①② Contactors, 200 kW | 3RT1.75 | 3RT1.75 | 3/64 ... 3/66, 3/130 |
| ①② Contactors, 250 kW | 3RT1.76 | 3RT1.76 | 3/64 ... 3/66, 3/130 |
| ③ Assembly kit consisting of: Wiring modules on the top and bottom for contactors without box terminals for connecting the main and auxiliary circuits, electrical interlock included (NC contact interlock) | 3RA1973-2A | | 3/104 |
| ④ Mechanical interlock | 3RA1954-2A | | 3/108 |
| ⑤ Base plate for reversing contactor assemblies | 3RA1972-2A | | 3/113 |

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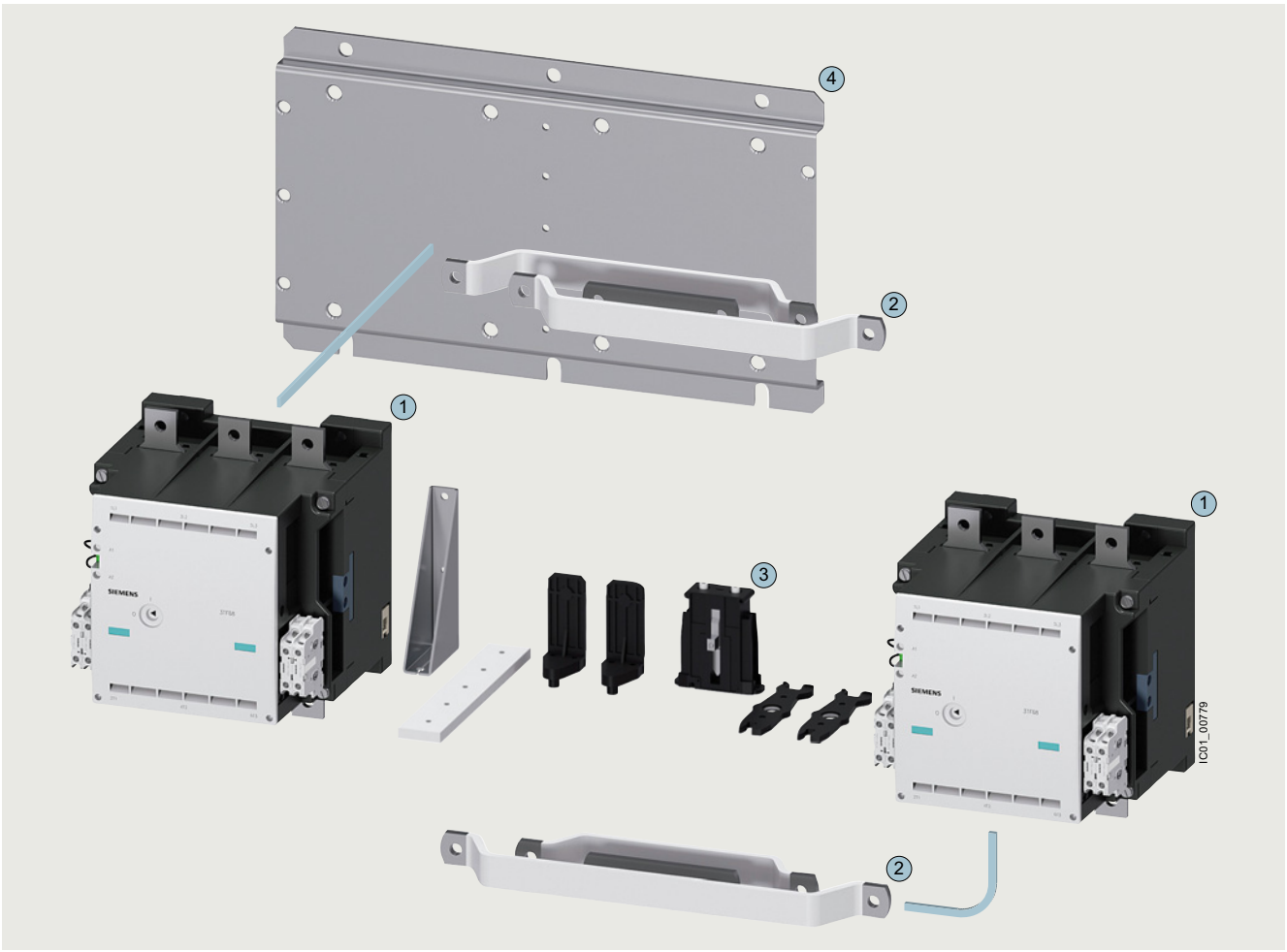
## Reversing contactor assemblies consisting of SIRIUS 3RT1 and 3TF6 contactors, up to 335 kW

***Reversing contactor assemblies for customer assembly · Size 14-14 · Up to 335 kW***




### Reversing contactor assembly for customer assembly

| Individual parts | | Type | | Page |
|---|---|---|---|---|
| | | Q11 | Q12 | |
| 1 | Vacuum contactors, 335 kW | 3TF68 | 3TF68 | 3/131, 3/132 |
| 2 | Assembly kit<br>consisting of:<br>Wiring modules on the top and bottom<br>for connecting the main and auxiliary circuits,<br>electrical interlock included (NC contact interlock) | 3TX7680-1A | | 3/135 |
| 3 | Locking device for mechanical interlock | 3TX7686-1A | | 3/135 |
| 4 | Base plate for reversing contactor assemblies | 3TX7681-1A | | 3/135 |

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## SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW



### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius | TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=LoadFeeder |
| Industry Mall, see www.siemens.com/product?3RA24_3RT | Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687 |
| Conversion tool, see www.siemens.com/conversion-tool | |

The 3RA24 contactor assemblies for star-delta (wye-delta) starting in sizes S00 to S3 can be ordered as follows:

- Fully wired and tested, with electrical and mechanical interlock, see page 3/167 onwards.
- For all individual parts for customer assembly, see page 3/69 onwards.

The 3RA24 contactor assemblies for star-delta (wye-delta) starting have screw terminals or spring-loaded terminals and are suitable for screw fixing and snap-on mounting on TH 35 DIN rails.

A base plate is also available for the size S2 and S3 assemblies.

A dead interval of 50 ms on reversing is already integrated in the 3RA28 function module for star-delta (wye-delta) starting.

With the fully wired and tested 3RA24 contactor assemblies for star-delta (wye-delta) starting, the auxiliary contacts included in the basic units are unassigned.

The 3RA24 contactor assemblies for star-delta (wye-delta) starting are designed for standard applications.

Note:

Contactor assemblies for star-delta (wye-delta) starting in special applications such as very heavy starting[1] or star-delta (wye-delta) starting of special motors must be customized. Help with designing such special applications is available from our Technical Support, www.siemens.com/support-request.

[1] For effective assistance from Technical Support, you must provide the following details:
- Rated motor voltage,
- Rated motor current,
- Service factor, operating values
- Motor starting current factor
- Starting time
- Ambient temperature

#### *Surge suppression*

Surge suppression (varistor) is included in the 3RA28 function modules for star-delta (wye-delta) starting.

#### *Motor protection*

3RU2 overload relays (see page 7/89 onwards) or 3RB3 overload relays (see page 7/102 onwards) for contactor mounting or stand-alone installation, SIMOCODE pro 3UF7 motor management and control devices (see page 10/12 onwards) or 3RN2 thermistor motor protection relays (see page 10/136 onwards) can be used for motor protection.

The overload relay can either be mounted on the line contactor or fitted separately. It must be set to 0.58 times the rated motor current.

#### *SIRIUS 3RA28 function module for star-delta (wye-delta) starting*

The 3RA2816-0EW20 star-delta (wye-delta) function module (see page 3/100) replaces the complete wiring in the control circuit and can be used in the voltage range from 24 to 240 V AC/DC. It is snapped onto the front of the contactor assembly for star-delta (wye-delta) starting size S00, S0, S2 or S3.

One function module comprises a complete module kit:

- Basic module with integrated control logic and time setting
- Two coupling modules with corresponding connecting cables

The scope of supply thus comprises a complete module kit for one contactor assembly for star-delta (wye-delta) starting in size S00, S0, S2 or S3, regardless of the connection method.

Data of the control circuit:

- Wide voltage range 24 to 240 V AC/DC
- Time setting range 0.5 to 60 s (3 selectable settings)
- Dead interval of 50 ms, non-adjustable

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### *Complete units*

Note:

The selection of contactor types refers to fused designs.

| Rated data at 50 Hz 400 V AC | | | Size | Type | | |
|---|---|---|---|---|---|---|
| **Rating** ***P*** **kW** | Operational current $I_e$ A | Motor current A | | Line/delta contactor | Star contactor | **Fully wired and tested contactor assemblies for star-delta (wye-delta) starting** |
| | | | | **Screw terminals** | | |
| **5.5** | 12 | 9.5 ... 13.8 | **S00-S00-S00** | 3RT2015-1.... | 3RT2015-1.... | **3RA2415-8XF31-1...** |
| **7.5** | 16 | 12.1 ... 17 | | 3RT2017-1.... | 3RT2015-1.... | **3RA2416-8XF31-1...** |
| **11** | 25 | 19 ... 25 | | 3RT2018-1.... | 3RT2016-1.... | **3RA2417-8XF31-1...** |
| **11** | 25 | 19 ... 25 | **S0-S0-S0** | 3RT2024-1...0 | 3RT2024-1...0 | **3RA2423-8XF32-1...** |
| **15** | 32 | 24.1 ... 34 | | 3RT2026-1...0 | 3RT2024-1...0 | **3RA2425-8XF32-1...** |
| **18.5** | 40 | 34.5 ... 40 | | 3RT2026-1...0 | 3RT2024-1...0 | **3RA2425-8XF32-1...** |
| **22** | 50 | 31 ... 43 | | 3RT2027-1...0 | 3RT2026-1...0 | **3RA2426-8XF32-1...** |
| **22/30** | 50 | 31 ... 43 | **S2-S2-S0** | 3RT2035-1...0 | 3RT2026-1...0 | **3RA2434-8XF32-1...** |
| **37** | 80 | 62.1 ... 77.8 | | 3RT2035-1...0 | 3RT2027-1...0 | **3RA2435-8XF32-1...** |
| **45** | 86 | 69 ... 86 | | 3RT2036-1...0 | 3RT2028-1...0 | **3RA2436-8XF32-1...** |
| **55** | 115 | 77.6 ... 108.6 | **S2-S2-S2** | 3RT2037-1...0 | 3RT2035-1...0 | **3RA2437-8XF32-1...** |
| **55** | 115 | 77.6 ... 108.6 | **S3-S3-S2** | 3RT2045-1...0 | 3RT2035-1...0 | **3RA2444-8XF32-1...** |
| **75** | 150 | 120.7 ... 150 | | 3RT2045-1...0 | 3RT2036-1...0 | **3RA2445-8XF32-1...** |
| **90** | 160 | 86 ... 160 | | 3RT2046-1...0 | 3RT2037-1...0 | **3RA2446-8XF32-1...** |
| | | | | **Spring-loaded terminals** | | |
| **5.5** | 12 | 9.5 ... 13.8 | **S00-S00-S00** | 3RT2015-2.... | 3RT2015-2.... | **3RA2415-8XF31-2...** |
| **7.5** | 16 | 12.1 ... 17 | | 3RT2017-2.... | 3RT2015-2.... | **3RA2416-8XF31-2...** |
| **11** | 25 | 19 ... 25 | | 3RT2018-2.... | 3RT2016-2.... | **3RA2417-8XF31-2...** |
| **11** | 25 | 19 ... 25 | **S0-S0-S0** | 3RT2024-2...0 | 3RT2024-2...0 | **3RA2423-8XF32-2...** |
| **15** | 32 | 24.1 ... 34 | | 3RT2026-2...0 | 3RT2024-2...0 | **3RA2425-8XF32-2...** |
| **18.5** | 40 | 34.5 ... 40 | | 3RT2026-2...0 | 3RT2024-2...0 | **3RA2425-8XF32-2...** |
| **22** | 50 | 31 ... 43 | | 3RT2027-2...0 | 3RT2026-2...0 | **3RA2426-8XF32-2...** |

### *Article number scheme*

| **Product versions** | | **Article number** |
|---|---|---|
| **SIRIUS contactor assembly for star-delta (wye-delta) starting** | | **3RA24** □ □ – □ □ □ □ □ – □ □ □ □ |
| Size of the contactor | e.g. 4 = S3 | □ |
| Rating dependent on size | e.g. 5 = 75 kW for size S3 | □ |
| Type of overload relay | e.g. 8X = Without | □ □ |
| Assembly | e.g. F = Ready-assembled with function modules | □ |
| Interlock | e.g. 3 = Mechanical and electrical | □ |
| Free auxiliary switches | e.g. 2 = S3: 3 NO + 3 NC total | □ |
| Type of electrical connection | e.g. 1 = Screw terminals (main and auxiliary circuits) | □ |
| Operating range/solenoid coil circuit | e.g. A = AC standard/without coil circuit | □ |
| Rated control supply voltage | e.g. L2 = 230 V AC, 50/60 Hz | □ □ |
| Example | | **3RA24 4 5 – 8 X F 3 2 – 1 A L 2** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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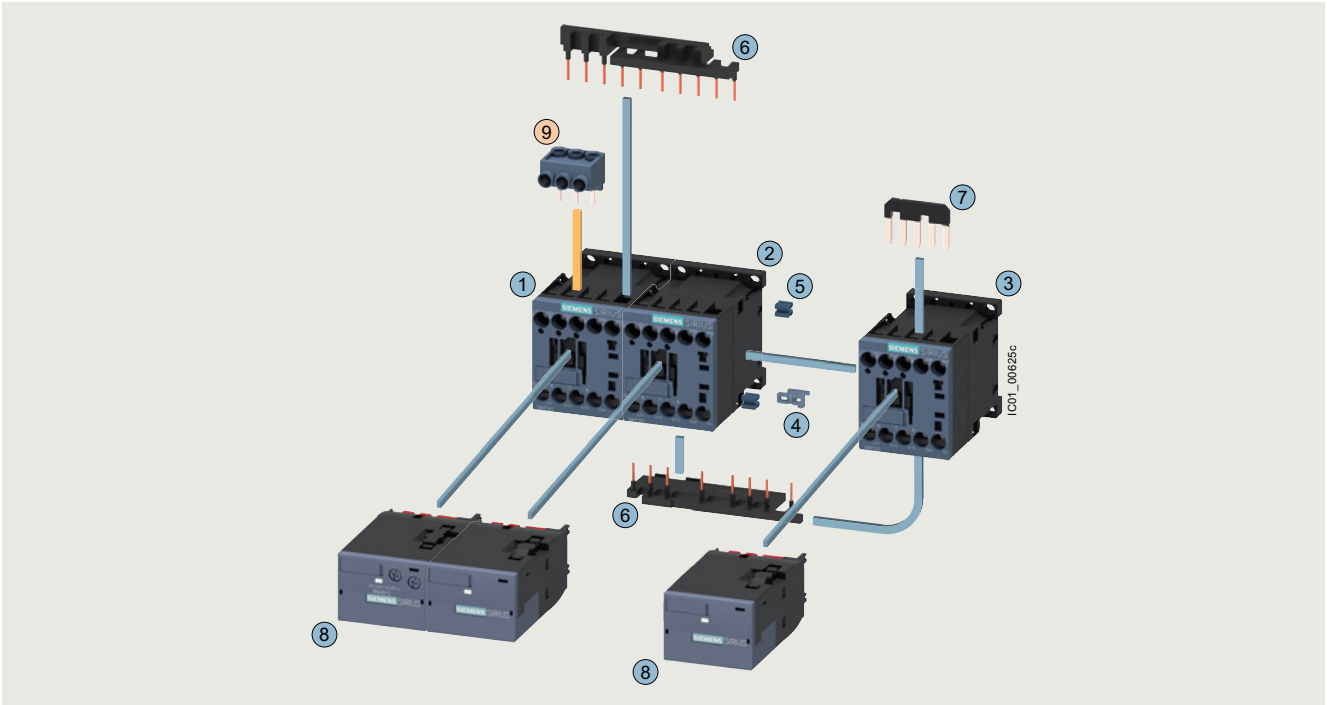
## SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW

***Fully wired and tested contactor assemblies for star-delta (wye-delta) starting · Size S00-S00-S00 · Up to 11 kW***

The figure shows the version with screw terminals




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| (9) 3-phase infeed terminal[1] | 3RA2913-3K | 3/110 |

### Complete contactor assembly for star-delta (wye-delta) starting

| Individual parts | | Type Q11[2] | Q13 | Q12 | Page |
|---|---|---|---|---|---|
| (1)(2)(3) | Contactors, 5.5 kW | 3RT2015 | 3RT2015 | 3RT2015 | 3/47, 3/52 |
| (1)(2)(3) | Contactors, 7.5 kW | 3RT2017 | 3RT2017 | 3RT2015 | 3/47, 3/52 |
| (1)(2)(3) | Contactors, 11 kW | 3RT2018 | 3RT2018 | 3RT2016 | 3/47, 3/52 |
| (4) ... (7) | Assembly kit S00-S00-S00 comprising: | 3RA2913-2BB1 | | | 3/105 |
| | (4) Mechanical interlock | | | | |
| | (5) Four connecting clips for three contactors | | | | |
| | (6) Wiring modules on top and bottom for connecting the main and auxiliary circuits | | | | |
| | (7) Star jumper | | | | |
| (8) | Function modules for star-delta (wye-delta) starting | 3RA2816-0EW20 | | | 3/100 |

[1] Part (9) can only be mounted for contactors with screw terminals.
[2] The version with 1 NO is required for momentary-contact operation.

Complete contactor assemblies for star-delta (wye-delta) starting, see page 3/167.

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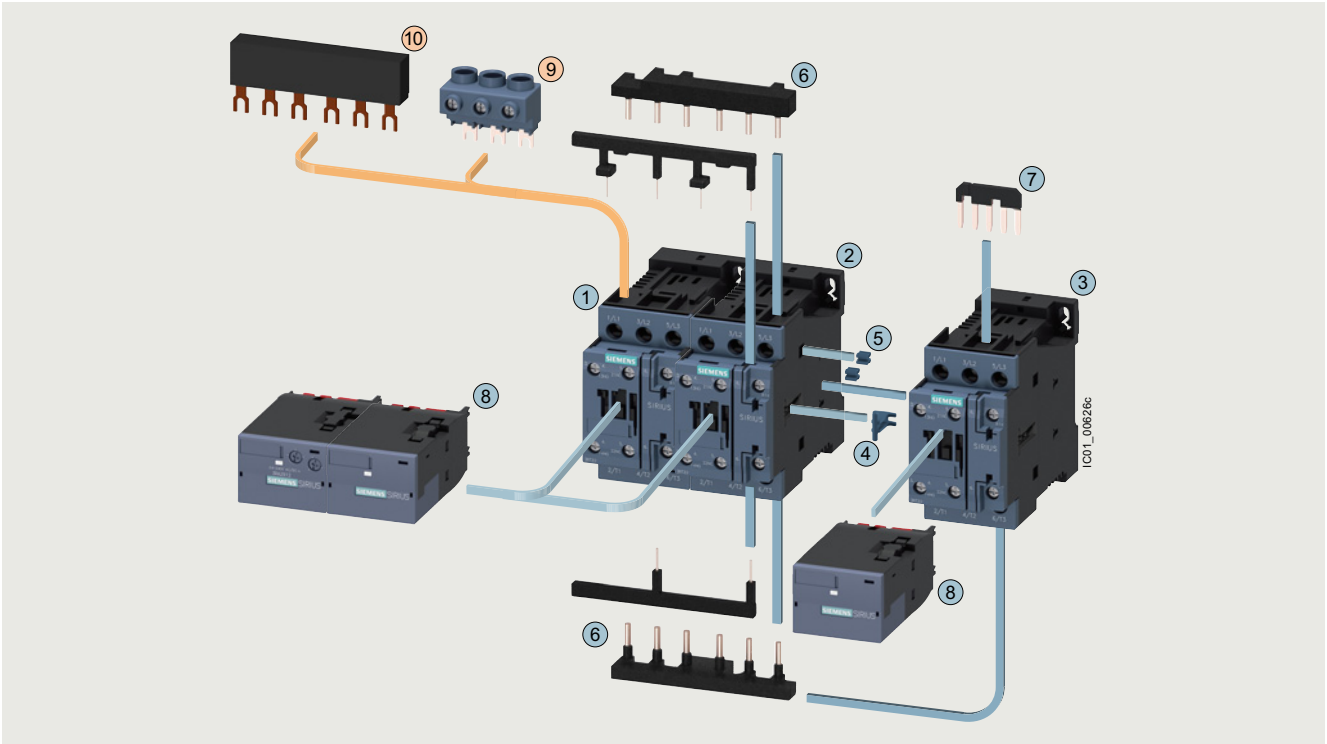
## SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW

***Fully wired and tested contactor assemblies for star-delta (wye-delta) starting · Size S0-S0-S0 · Up to 22 kW***

The figure shows the version with screw terminals




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| 9 3-phase infeed terminal[1)] | 3RV2925-5AB | 3/110 |
| 10 3-phase busbar[1)] | 3RV1915-1AB | 3/110 |

### Complete contactor assembly for star-delta (wye-delta) starting

| Individual parts | Type | | | Page |
|---|---|---|---|---|
| | Q11 | Q13 | Q12 | |
| 1 2 3 Contactors, 11 kW | 3RT2024 | 3RT2024 | 3RT2024 | 3/48, 3/56 |
| 1 2 3 Contactors, 15/18.5 kW | 3RT2026 | 3RT2026 | 3RT2024 | 3/48, 3/56 |
| 1 2 3 Contactors, 22 kW | 3RT2027 | 3RT2027 | 3RT2026 | 3/48, 3/56 |
| 4 ... 7 Assembly kit S0-S0-S0 comprising: | 3RA2923-2BB1 | | | 3/105 |
| 4 Mechanical interlock | | | | |
| 5 Four connecting clips for three contactors | | | | |
| 6 Wiring modules on top and bottom for connecting the main and auxiliary circuits | | | | |
| 7 Star jumper | | | | |
| 8 Function modules for star-delta (wye-delta) starting | 3RA2816-0EW20 | | | 3/100 |

[1)] The parts 9 and 10 can only be mounted for contactors with screw terminals, the wiring modules 6 must be removed beforehand.

Complete contactor assemblies for star-delta (wye-delta) starting, see page 3/168.

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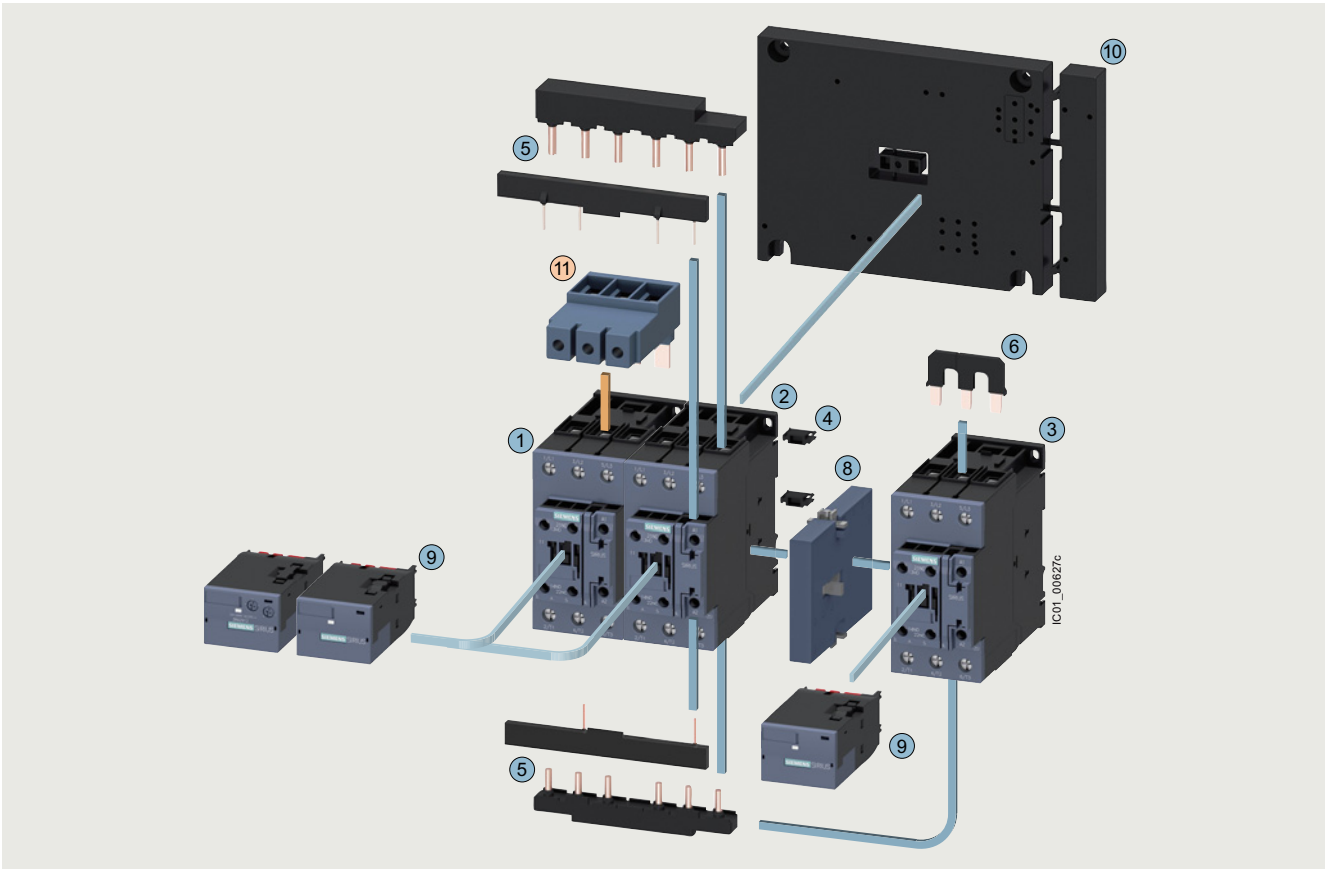
## SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW

***Fully wired and tested contactor assemblies for star-delta (wye-delta) starting · Size S2-S2-S0[1] · Up to 45 kW and S2-S2-S2 · 55 kW***

The figure shows the version with screw terminals in S2-S2-S2




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| (11) 3-phase infeed terminal | 3RV2935-5A | 3/110 |

### Complete contactor assembly for star-delta (wye-delta) starting

| Individual parts | | Type Q11 | Q13 | Q12 | Page |
|---|---|---|---|---|---|
| (1)(2)(3) | Contactors, 22/30 kW | 3RT2035 | 3RT2035 | 3RT2026 | 3/50, 3/61 |
| (1)(2)(3) | Contactors, 37 kW | 3RT2035 | 3RT2035 | 3RT2027 | 3/50, 3/61 |
| (1)(2)(3) | Contactors, 45 kW | 3RT2036 | 3RT2036 | 3RT2028 | 3/50, 3/61 |
| (1)(2)(3) | Contactors, 55 kW | 3RT2037 | 3RT2037 | 3RT2035 | 3/50, 3/61 |
| (4) ... (7) | Assembly kit S2-S2-S2 comprising: | 3RA2933-2BB1 | | | 3/105 |
| | (4) Four connectors for three contactors (not required for fully pre-wired contactor assemblies for star-delta (wye-delta) starting) | | | | |
| | (5) Wiring modules on top and bottom for connecting the main and auxiliary circuits | | | | |
| | (6) Star jumper S2 | | | | |
| | (7) Cable for connecting the A2 coil contact of the line contactor with the A2 coil contact of the delta contactor (not shown in the drawing) | | | | |
| (8) | Mechanical interlock | 3RA2934-2B | | | 3/108 |
| (9) | Function modules for star-delta (wye-delta) starting | 3RA2816-0EW20 | | | 3/100 |
| (10) | Base plate star-delta (wye-delta) | 3RA2932-2F | | | 3/113 |

[1] Complete contactor assembly for star-delta (wye-delta) starting in size S2-S2-S0 (not shown): The 3RA2933-2C assembly kit is to be used here, see page 3/105.

Complete contactor assemblies for star-delta (wye-delta) starting, see page 3/169.

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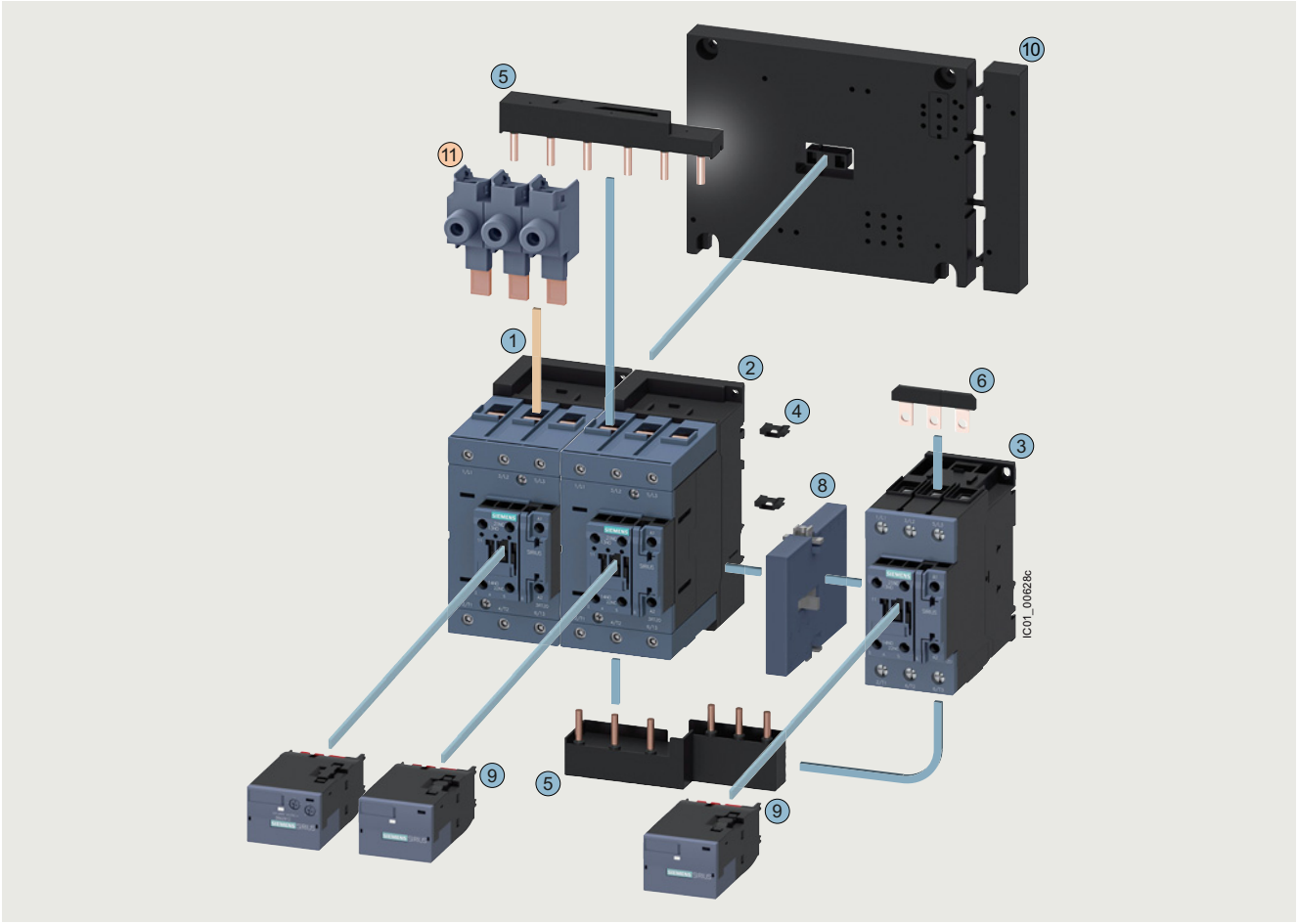
## SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW

***Fully wired and tested contactor assemblies for star-delta (wye-delta) starting · Size S3-S3-S2[1] · Up to 90 kW***




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| (11) 1-phase infeed terminal (three units are required) | 3RA2943-3L | 3/110 |

### Complete contactor assembly for star-delta (wye-delta) starting

| Individual parts | Type Q11 | Q13 | Q12 | Page |
|---|---|---|---|---|
| (1)(2)(3) Contactors, 55 kW | 3RT2045 | 3RT2045 | 3RT2035 | 3/51, 3/63 |
| (1)(2)(3) Contactors, 75 kW | 3RT2045 | 3RT2045 | 3RT2036 | 3/51, 3/63 |
| (1)(2)(3) Contactors, 90 kW | 3RT2046 | 3RT2046 | 3RT2037 | 3/51, 3/63 |
| (4) ... (7) Assembly kit S3-S3-S2 comprising: | 3RA2943-2C | | | 3/105 |
| (4) Two connectors for three contactors (not required for fully pre-wired contactor assemblies for star-delta (wye-delta) starting) | | | | |
| (5) Wiring modules on top and bottom (S3-S2) for connecting the main and auxiliary circuits and a cable set for the auxiliary circuit | | | | |
| (6) Star jumper S2 | | | | |
| (7) Cable for connecting the A2 coil contact of the line contactor with the A2 coil contact of the delta contactor (not shown in the drawing) | | | | |
| (8) Mechanical interlock | 3RA2934-2B | | | 3/108 |
| (9) Function modules for star-delta (wye-delta) starting | 3RA2816-0EW20 | | | 3/100 |
| (10) Base plate star-delta (wye-delta) | 3RA2942-2F | | | 3/113 |

[1] Contactor assembly for star-delta (wye-delta) starting for customer assembly in size S3-S3-S3 (not shown): The 3RA2943-2BB. assembly kit is to be used here, see page 3/105.

Complete contactor assemblies for star-delta (wye-delta) starting, see page 3/170.

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## SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW



### Technical specifications

**More information**

Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16150/td
FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16150/faq
System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318
Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60306557
Application Manual - Switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820
Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687

Unless otherwise indicated below, the technical specifications correspond to those of the 3RT individual contactors (see page 3/25 onwards) and 3RU2 overload relays (see page 7/85 onwards).

| Type | | 3RA2415 | 3RA2416 | 3RA2417 | 3RA2423 | 3RA2425 | 3RA2426 |
|---|---|---|---|---|---|---|---|
| Sizes | | S00-S00-S00 | S00-S00-S00 | S00-S00-S00 | S0-S0-S0 | S0-S0-S0 | S0-S0-S0 |
| **General data** | | | | | | | |
| **Dimensions (W x H x D) with function module** | | | | | | | |
| • AC operation | | | | | | | |
| - Screw terminals | mm | 135 x 68 x 145 | | | 135 x 101 x 171 | | |
| - Spring-loaded terminals | mm | 135 x 84 x 145 | | | 135 x 114 x 171 | | |
| • DC operation | | | | | | | |
| - Screw terminals | mm | 135 x 68 x 145 | | | 135 x 101 x 181 | | |
| - Spring-loaded terminals | mm | 135 x 84 x 145 | | | 135 x 114 x 181 | | |
| **Individual contactors** | | | | | | | |
| • Q11 line contactor | Type | 3RT2015 | 3RT2017 | 3RT2018 | 3RT2024 | 3RT2026 | 3RT2027 |
| • Q13 delta contactor | Type | 3RT2015 | 3RT2017 | 3RT2018 | 3RT2024 | 3RT2026 | 3RT2027 |
| • Q12 star contactor | Type | 3RT2015 | 3RT2015 | 3RT2016 | 3RT2024 | 3RT2024 | 3RT2026 |
| **Mechanical endurance** | Operating cycles | 3 million | | | | | |
| **Unassigned auxiliary contacts of the individual contactors** | | For circuit diagrams of the control circuit, see Equipment Manual for contactors/contactor assemblies | | | | | |
| **Short-circuit protection** | | | | | | | |
| **Main circuit without overload relays** | | | | | | | |
| Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE with single or double infeed | | | | | | | |
| • Highest rated current of the fuse according to IEC 60947-4-1 | | | | | | | |
| - Type of coordination "1" | A | 35 | | 63 | | 100 | 125 |
| - Type of coordination "2" | A | 20 | | 25 | | 35 | 63 |
| **Auxiliary circuit** | | | | | | | |
| Short-circuit test | | | | | | | |
| • With fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k$ = 1 kA according to IEC 60947-5-1 | A<br>A | 10<br>6 (up to $I_k$ < 0.5 kA; ≤ 260 V), if the auxiliary contact of the overload relay is connected in the contactor coil circuit | | | | | |
| • With miniature circuit breaker, C characteristic with short-circuit current $I_k$ = 400 A | A<br>A | 10<br>6 (up to $I_k$ < 0.5 kA; ≤ 260 V), if the auxiliary contact of the overload relay is connected in the contactor coil circuit | | | | | |
| Short-circuit protection with overload relay | | See Configuration Manual for load feeders | | | | | |

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## SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW

| Type | | | 3RA2415 | 3RA2416 | 3RA2417 | 3RA2423 | 3RA2425 | 3RA2426 |
|---|---|---|---|---|---|---|---|---|
| Sizes | | | S00-S00-S00 | S00-S00-S00 | S00-S00-S00 | S0-S0-S0 | S0-S0-S0 | S0-S0-S0 |
| **Rated data of the main contacts** | | | | | | | | |
| **Current-carrying capacity with reversing time up to 10 s** | | | | | | | | |
| • Rated operational current $I_e$ | at 400 V | A | 12 | 17 | 25 | | 40 | 55 |
| | 690 V | A | 6.9 | 9 | 20.8 | | 22.5 | 35 |
| • Rated power for three-phase motors at 50 Hz and 60 Hz | at 230 V | kW | 3.3 | 4.7 | 7.2 | | 12 | 16.6 |
| | 400 V | kW | 5.8 | 8.2 | 12.5 | | 21 | 30.1 |
| | 690 V | kW | 5.8 | 7.5 | 18 | | 20.4 | 33 |
| • **Switching frequency** with overload relay | | 1/h | 15 | | | | | |
| **Current-carrying capacity with reversing time up to 15 s** | | | | | | | | |
| • Rated operational current $I_e$ | at 400 V | A | 12 | 17 | 25 | | 31 | 44 |
| | 690 V | A | 6.9 | 9 | 20.8 | | 22.5 | 35 |
| • Rated power for three-phase motors at 50 Hz and 60 Hz | at 230 V | kW | 3.3 | 4.7 | 7.2 | | 9.4 | 13.8 |
| | 400 V | kW | 5.8 | 8.2 | 12.5 | | 16.3 | 24 |
| | 690 V | kW | 5.8 | 7.5 | 18 | | 20.4 | 33 |
| • **Switching frequency** with overload relay | | 1/h | 15 | | | | | |
| **Current-carrying capacity with reversing time up to 20 s** | | | | | | | | |
| • Rated operational current $I_e$ | at 400 V | A | 12 | 17 | 25 | | 28 | 39 |
| | 690 V | A | 6.9 | 9 | 20.8 | | 22.5 | 35 |
| • Rated power for three-phase motors at 50 Hz and 60 Hz | at 230 V | kW | 3.3 | 4.7 | 7.2 | | 8.5 | 12.2 |
| | 400 V | kW | 5.8 | 8.2 | 12.5 | | 14.7 | 21.3 |
| | 690 V | kW | 5.8 | 7.5 | 18 | | 20.4 | 33 |
| • **Switching frequency** with overload relay | | 1/h | 15 | | | | | |

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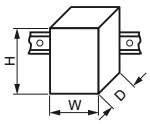
## SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW

| Type | | | 3RA2434 | 3RA2435 | 3RA2436 | 3RA2437 | 3RA2444 | 3RA2445 | 3RA2446 |
|---|---|---|---|---|---|---|---|---|---|
| Sizes | | | S2-S2-S0 | S2-S2-S0 | S2-S2-S0 | S2-S2-S2 | S3-S3-S2 | S3-S3-S2 | S3-S3-S2 |
| **General data** | | | | | | | | | |
| **Dimensions (W x H x D) with function module**   | | | | | | | | | |
| • AC and DC operation | | | | | | | | | |
| - Screw terminals | | mm | 177.5 x 142 x 223 | | | | 220 x 180 x 244 | | |
| **Individual contactors** | | | | | | | | | |
| • Q11 line contactor | | Type | 3RT2035 | 3RT2035 | 3RT2036 | 3RT2037 | 3RT2045 | 3RT2045 | 3RT2046 |
| • Q13 delta contactor | | Type | 3RT2035 | 3RT2035 | 3RT2036 | 3RT2037 | 3RT2045 | 3RT2045 | 3RT2046 |
| • Q12 star contactor | | Type | 3RT2026 | 3RT2027 | 3RT2028 | 3RT2035 | 3RT2035 | 3RT2036 | 3RT2037 |
| **Mechanical endurance** | | Operating cycles | 1 million | | | | | | |
| **Unassigned auxiliary contacts of the individual contactors** | | | For circuit diagrams of the control circuit, see Equipment Manual. | | | | | | |
| **Short-circuit protection** | | | | | | | | | |
| **Main circuit without overload relays** | | | | | | | | | |
| Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE with single or double infeed | | | | | | | | | |
| • Highest rated current of the fuse according to IEC 60947-4-1 | | | | | | | | | |
| - Type of coordination "1" | | A | 160 | | | 250 | | | |
| - Type of coordination "2" | | A | 80 | | | 125 | 160 | | |
| **Auxiliary circuit** | | | | | | | | | |
| Short-circuit test | | | | | | | | | |
| • With fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k$ = 1 kA according to IEC 60947-5-1 | | A<br>A | 10<br>6 (up to $I_k$ < 0.5 kA; ≤ 260 V), if the auxiliary contact of the overload relay is connected in the contactor coil circuit | | | | | | |
| • With miniature circuit breaker, C characteristic with short-circuit current $I_k$ = 400 A | | A<br>A | 10<br>6 (up to $I_k$ < 0.5 kA; ≤ 260 V), if the auxiliary contact of the overload relay is connected in the contactor coil circuit | | | | | | |
| Short-circuit protection with overload relay | | | See Configuration Manual for load feeders | | | | On request | | |
| **Rated data of the main contacts** | | | | | | | | | |
| **Current-carrying capacity with reversing time up to 10 s** | | | | | | | | | |
| • Rated operational current $I_e$ | at 400 V | A | On request | | | | | | |
| | 690 V | A | On request | | | | | | |
| • Rated power for three-phase motors at 50 Hz and 60 Hz | at 230 V | kW | On request | | | | | | |
| | 400 V | kW | On request | | | | | | |
| | 690 V | kW | On request | | | | | | |
| • **Switching frequency** with overload relay | | 1/h | 15 | | | | | | |
| **Current-carrying capacity with reversing time up to 15 s** | | | | | | | | | |
| • Rated operational current $I_e$ | at 400 V | A | On request | | | | | | |
| | 690 V | A | On request | | | | | | |
| • Rated power for three-phase motors at 50 Hz and 60 Hz | at 230 V | kW | On request | | | | | | |
| | 400 V | kW | On request | | | | | | |
| | 690 V | kW | On request | | | | | | |
| • **Switching frequency** with overload relay | | 1/h | 15 | | | | | | |
| **Current-carrying capacity with reversing time up to 20 s** | | | | | | | | | |
| • Rated operational current $I_e$ | at 400 V | A | On request | | | | | | |
| | 690 V | A | On request | | | | | | |
| • Rated power for three-phase motors at 50 Hz and 60 Hz | at 230 V | kW | On request | | | | | | |
| | 400 V | kW | On request | | | | | | |
| | 690 V | kW | On request | | | | | | |
| • **Switching frequency** with overload relay | | 1/h | 15 | | | | | | |

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## Selection and ordering data

***Fully wired and tested contactor assemblies for star-delta (wye-delta) starting · Size S00-S00-S00 · Up to 11 kW***
***AC operation ~ or DC operation ⎓***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RA241.-8XF31-1A.0

3RA241.-8XF31-2A.0

3RA241.-8XE31-2BB4

| Rated data AC-3 | | | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and 60 Hz at | | | | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | 230 V | **400 V** | 690 V | | | | | |
| A | kW | **kW** | kW | V | | | | |
| **AC operation, 50/60 Hz** | | | | | | | | |
| 12 | 3.3 | **5.5** | 9.2 | 24 AC | **3RA2415-8XF31-1AB0** | | **3RA2415-8XF31-2AB0** | |
| | | | | 110 AC | **3RA2415-8XF31-1AF0** | | **3RA2415-8XF31-2AF0** | |
| | | | | 230 AC | **3RA2415-8XF31-1AP0** | | **3RA2415-8XF31-2AP0** | |
| 16 | 4.7 | **7.5** | 9.2 | 24 AC | **3RA2416-8XF31-1AB0** | | **3RA2416-8XF31-2AB0** | |
| | | | | 110 AC | **3RA2416-8XF31-1AF0** | | **3RA2416-8XF31-2AF0** | |
| | | | | 230 AC | **3RA2416-8XF31-1AP0** | | **3RA2416-8XF31-2AP0** | |
| 25 | 5.5 | **11** | 11 | 24 AC | **3RA2417-8XF31-1AB0** | | **3RA2417-8XF31-2AB0** | |
| | | | | 110 AC | **3RA2417-8XF31-1AF0** | | **3RA2417-8XF31-2AF0** | |
| | | | | 230 AC | **3RA2417-8XF31-1AP0** | | **3RA2417-8XF31-2AP0** | |
| **DC operation** | | | | | | | | |
| 12 | 3.3 | **5.5** | 9.2 | 24 DC | **3RA2415-8XF31-1BB4** | | **3RA2415-8XF31-2BB4** | |
| 16 | 4.7 | **7.5** | 9.2 | 24 DC | **3RA2416-8XF31-1BB4** | | **3RA2416-8XF31-2BB4** | |
| 25 | 5.5 | **11** | 11 | 24 DC | **3RA2417-8XF31-1BB4** | | **3RA2417-8XF31-2BB4** | |
| ***For IO-Link connection*** | | | | | | | | |
| 12 | 3.3 | **5.5** | 9.2 | 24 DC | **3RA2415-8XE31-1BB4** | | **3RA2415-8XE31-2BB4** | |
| 16 | 4.7 | **7.5** | 9.2 | 24 DC | **3RA2416-8XE31-1BB4** | | **3RA2416-8XE31-2BB4** | |
| 25 | 5.5 | **11** | 11 | 24 DC | **3RA2417-8XE31-1BB4** | | **3RA2417-8XE31-2BB4** | |
| ***For AS-Interface integration*** | | | | | | | | |
| 12 | 3.3 | **5.5** | 9.2 | 24 DC | **3RA2415-8XH31-1BB4** | | **3RA2415-8XH31-2BB4** | |
| 16 | 4.7 | **7.5** | 9.2 | 24 DC | **3RA2416-8XH31-1BB4** | | **3RA2416-8XH31-2BB4** | |
| 25 | 5.5 | **11** | 11 | 24 DC | **3RA2417-8XH31-1BB4** | | **3RA2417-8XH31-2BB4** | |

Representation of the complete contactor assemblies for star-delta (wye-delta) starting with optionally mountable accessories, see page 3/160.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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### SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW *IE3/IE4* ready

***Fully wired and tested contactor assemblies for star-delta (wye-delta) starting · Size S0-S0-S0 · Up to 22 kW***
***AC operation or DC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RA242.-8XF32-1A.2

3RA242.-8XE32-1BB4

3RA242.-8XF32-2A.2

| Rated data AC-3 | | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and 60 Hz at | | | | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | 230 V | **400 V** | 690 V | | | | | |
| A | kW | **kW** | kW | V | | | | |
| **AC operation, 50/60 Hz** | | | | | | | | |
| 25 | 7.1 | **11** | 19 | 24 AC | **3RA2423-8XF32-1AC2** | | **3RA2423-8XF32-2AC2** | |
| | | | | 110 AC | **3RA2423-8XF32-1AG2** | | **3RA2423-8XF32-2AG2** | |
| | | | | 230 AC | **3RA2423-8XF32-1AL2** | | **3RA2423-8XF32-2AL2** | |
| 32/40 | 11.4 | **15/18.5** | 19 | 24 AC | **3RA2425-8XF32-1AC2** | | **3RA2425-8XF32-2AC2** | |
| | | | | 110 AC | **3RA2425-8XF32-1AG2** | | **3RA2425-8XF32-2AG2** | |
| | | | | 230 AC | **3RA2425-8XF32-1AL2** | | **3RA2425-8XF32-2AL2** | |
| 50 | -- | **22** | 19 | 24 AC | **3RA2426-8XF32-1AC2** | | **3RA2426-8XF32-2AC2** | |
| | | | | 110 AC | **3RA2426-8XF32-1AG2** | | **3RA2426-8XF32-2AG2** | |
| | | | | 230 AC | **3RA2426-8XF32-1AL2** | | **3RA2426-8XF32-2AL2** | |
| **DC operation** | | | | | | | | |
| 25 | 7.1 | **11** | 19 | 24 DC | **3RA2423-8XF32-1BB4** | | **3RA2423-8XF32-2BB4** | |
| 32/40 | 11.4 | **15/18.5** | 19 | 24 DC | **3RA2425-8XF32-1BB4** | | **3RA2425-8XF32-2BB4** | |
| 50 | -- | **22** | 19 | 24 DC | **3RA2426-8XF32-1BB4** | | **3RA2426-8XF32-2BB4** | |
| ***For IO-Link connection*** | | | | | | | | |
| 25 | 7.1 | **11** | 19 | 24 DC | **3RA2423-8XE32-1BB4** | | **3RA2423-8XE32-2BB4** | |
| 32/40 | 11.4 | **15/18.5** | 19 | 24 DC | **3RA2425-8XE32-1BB4** | | **3RA2425-8XE32-2BB4** | |
| 50 | -- | **22** | 19 | 24 DC | **3RA2426-8XE32-1BB4** | | **3RA2426-8XE32-2BB4** | |
| ***For AS-Interface integration*** | | | | | | | | |
| 25 | 7.1 | **11** | 19 | 24 DC | **3RA2423-8XH32-1BB4** | | **3RA2423-8XH32-2BB4** | |
| 32/40 | 11.4 | **15/18.5** | 19 | 24 DC | **3RA2425-8XH32-1BB4** | | **3RA2425-8XH32-2BB4** | |
| 50 | -- | **22** | 19 | 24 DC | **3RA2426-8XH32-1BB4** | | **3RA2426-8XH32-2BB4** | |

Representation of the complete contactor assemblies for star-delta (wye-delta) starting with optionally mountable accessories, see page 3/161.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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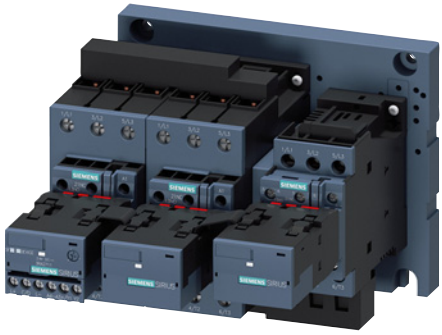
**IE3/IE4 ready** **SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW**

***Fully wired and tested contactor assemblies for star-delta (wye-delta) starting · Size S2-S2-S0 · Up to 45 kW and S2-S2-S2 · 55 kW***
***AC operation or AC/DC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RA2437-8XF32-1A.2



3RA2434-8XE32-1NB3

| Rated data AC-3 | | | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and 60 Hz at | | | | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | 230 V | **400 V** | 690 V | | | | | |
| A | kW | **kW** | kW | V | | | | |
| **AC operation, 50/60 Hz** | | | | | | | | |
| 50/65 | 19.6 | **22/30** | 34 | 24 AC | **3RA2434-8XF32-1AC2** | | **--** | |
| | | | | 110 AC | **3RA2434-8XF32-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2434-8XF32-1AL2** | | **--** | |
| 80 | 25 | **37** | 63 | 24 AC | **3RA2435-8XF32-1AC2** | | **--** | |
| | | | | 110 AC | **3RA2435-8XF32-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2435-8XF32-1AL2** | | **--** | |
| 86 | 27 | **45** | 63 | 24 AC | **3RA2436-8XF32-1AC2** | | **--** | |
| | | | | 110 AC | **3RA2436-8XF32-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2436-8XF32-1AL2** | | **--** | |
| 115 | 37 | **55** | 93 | 24 AC | **3RA2437-8XF32-1AC2** | | **--** | |
| | | | | 110 AC | **3RA2437-8XF32-1AG2** | | **--** | |
| | | | | 230 AC | **3RA2437-8XF32-1AL2** | | **--** | |
| **AC/DC operation, 50/60 Hz AC or DC** | | | | | | | | |
| ***With integrated coil circuit (varistor integrated in electronics at the factory)*** | | | | | | | | |
| 50/65 | 19.6 | **22/30** | 34 | 20 ... 33 AC/DC | **3RA2434-8XF32-1NB3** | | **--** | |
| 80 | 25 | **37** | 63 | 20 ... 33 AC/DC | **3RA2435-8XF32-1NB3** | | **--** | |
| 86 | 27 | **45** | 63 | 20 ... 33 AC/DC | **3RA2436-8XF32-1NB3** | | **--** | |
| 115 | 37 | **55** | 93 | 20 ... 33 AC/DC | **3RA2437-8XF32-1NB3** | | **--** | |
| **For IO-Link connection** | | | | | | | | |
| 50/65 | 19.6 | **22/30** | 34 | 20 ... 33 AC/DC | **3RA2434-8XE32-1NB3** | | **--** | |
| 80 | 25 | **37** | 63 | 20 ... 33 AC/DC | **3RA2435-8XE32-1NB3** | | **--** | |
| 86 | 27 | **45** | 63 | 20 ... 33 AC/DC | **3RA2436-8XE32-1NB3** | | **--** | |
| 115 | 37 | **55** | 93 | 20 ... 33 AC/DC | **3RA2437-8XE32-1NB3** | | **--** | |
| **For AS-Interface integration** | | | | | | | | |
| 50/65 | 19.6 | **22/30** | 34 | 20 ... 33 AC/DC | **3RA2434-8XH32-1NB3** | | **--** | |
| 80 | 25 | **37** | 63 | 20 ... 33 AC/DC | **3RA2435-8XH32-1NB3** | | **--** | |
| 86 | 27 | **45** | 63 | 20 ... 33 AC/DC | **3RA2436-8XH32-1NB3** | | **--** | |
| 115 | 37 | **55** | 93 | 20 ... 33 AC/DC | **3RA2437-8XH32-1NB3** | | **--** | |

Representation of the complete contactor assemblies for star-delta (wye-delta) starting in size S2-S2-S2 with optionally mountable accessories, see page 3/162.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RA24 contactor assemblies for star-delta (wye-delta) starting, up to 90 kW IE3/IE4 ready

***Fully wired and tested contactor assemblies for star-delta (wye-delta) starting · Size S3-S3-S2 · Up to 90 kW***
***AC operation ~ or AC/DC operation ≂***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RA244.-8XF32-1A.2

3RA244.-8XE32-1NB3

3RA244.-8XH32-1NB3

| Rated data AC-3 | | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and 60 Hz at | | | | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | 230 V | **400 V** | 690 V | | | | | |
| A | kW | **kW** | kW | V | | | | |
| **AC operation, 50/60 Hz** | | | | | | | | |
| 115 | 30 | **55** | 90 | 24 AC | **3RA2444-8XF32-1AC2** | | -- | |
| | | | | 110 AC | **3RA2444-8XF32-1AG2** | | -- | |
| | | | | 230 AC | **3RA2444-8XF32-1AL2** | | -- | |
| 150 | 37 | **75** | 110 | 24 AC | **3RA2445-8XF32-1AC2** | | -- | |
| | | | | 110 AC | **3RA2445-8XF32-1AG2** | | -- | |
| | | | | 230 AC | **3RA2445-8XF32-1AL2** | | -- | |
| 160 | 45 | **90** | 132 | 24 AC | **3RA2446-8XF32-1AC2** | | -- | |
| | | | | 110 AC | **3RA2446-8XF32-1AG2** | | -- | |
| | | | | 230 AC | **3RA2446-8XF32-1AL2** | | -- | |
| **AC/DC operation, 50/60 Hz AC or DC** | | | | | | | | |
| ***With integrated coil circuit (varistor integrated in electronics at the factory)*** | | | | | | | | |
| 115 | 30 | **55** | 90 | 20 ... 33 AC/DC | **3RA2444-8XF32-1NB3** | | -- | |
| 150 | 37 | **75** | 110 | 20 ... 33 AC/DC | **3RA2445-8XF32-1NB3** | | -- | |
| 160 | 45 | **90** | 132 | 20 ... 33 AC/DC | **3RA2446-8XF32-1NB3** | | -- | |
| **For IO-Link connection** | | | | | | | | |
| 115 | 30 | **55** | 90 | 20 ... 33 AC/DC | **3RA2444-8XE32-1NB3** | | -- | |
| 150 | 37 | **75** | 110 | 20 ... 33 AC/DC | **3RA2445-8XE32-1NB3** | | -- | |
| 160 | 45 | **90** | 132 | 20 ... 33 AC/DC | **3RA2446-8XE32-1NB3** | | -- | |
| **For AS-Interface integration** | | | | | | | | |
| 115 | 30 | **55** | 90 | 20 ... 33 AC/DC | **3RA2444-8XH32-1NB3** | | -- | |
| 150 | 37 | **75** | 110 | 20 ... 33 AC/DC | **3RA2445-8XH32-1NB3** | | -- | |
| 160 | 45 | **90** | 132 | 20 ... 33 AC/DC | **3RA2446-8XH32-1NB3** | | -- | |

Representation of the complete contactor assemblies for star-delta (wye-delta) starting with optionally mountable accessories, see page 3/163.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Contactor assemblies for star-delta (wye-delta) starting consisting of SIRIUS 3RT and 3TF6 contactors, up to 710 kW

### Overview

The individual parts for the contactor assemblies for star-delta (wye-delta) starting for customer assembly must be ordered separately.

- 3RT contactors (see page 3/64 onwards) and 3RT12 and 3TF6 vacuum contactors (see page 3/135 onwards):
  The operating times of the individual contactors are rated in such a way that no overlapping of the contact connection and the arcing time between two contactors can occur on reversing, provided they are interlocked by way of their auxiliary switches (NC contact interlock) and the mechanical interlock.
  For assemblies with AC operation and 50/60 Hz, a dead interval of 50 ms must be provided when used with voltages over 500 V; a dead interval of 30 ms is recommended for use with voltages up to and including 400 V. These dead times do not apply to assemblies with DC operation.
  The operating times of the individual contactors are not affected by the mechanical interlock.
- Mechanical interlocks
  - 3RT contactors and 3RT12 vacuum contactors: Adapter and mechanical interlock to interlock S6 and S3, see page 3/108.
  - 3TF68 vacuum contactors: Locking device for mechanical interlock, see page 3/135.
- Wiring kits consisting of wiring modules or link rails and star jumpers
  - 3RT contactors and 3RT12 vacuum contactors: see page 3/106 onwards
  - 3TF68 vacuum contactors: see page 3/135
- Base plates
  - 3RT contactors and 3RT12 vacuum contactors: see page 3/113
  - 3TF68 vacuum contactors: see page 3/135

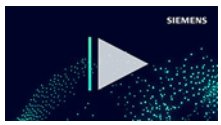
Additional components

- For momentary-contact operation: auxiliary switch (NO contact) for self-locking
- 3RB2 overload relays (see page 7/114 onwards), SIMOCODE pro 3UF7 motor management and control devices (see page 10/12 onwards) or 3RN2 thermistor motor protection relays (see page 10/136 onwards) can be used for overload protection.
  The overload relay can either be mounted on the line contactor or separately fitted. It must be set to 0.58 times the rated motor current.
- Optional surge suppression for the S3 contactors; the contactors in sizes S6 to S12 are wired as standard with varistors.

The contactor assemblies for star-delta (wye-delta) starting for customer assembly are designed for standard applications.

Note:

Contactor assemblies for star-delta (wye-delta) starting in special applications such as very heavy starting[1)] or star-delta (wye-delta) starting of special motors must be customized. Help with designing such special applications is available from our Technical Support, www.siemens.com/support-request.




Video: SIRIUS contactor assembly for star-delta (wye-delta) starting – configuration example with 75 kW contactors

**More information**

Homepage, see www.siemens.com/sirius

Industry Mall, see www.siemens.com/product?3RA24_3RT

Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687

1) For effective assistance from Technical Support, you must provide the following details:
- Rated motor voltage,
- Rated motor current,
- Service factor, operating values
- Motor starting current factor
- Starting time
- Ambient temperature

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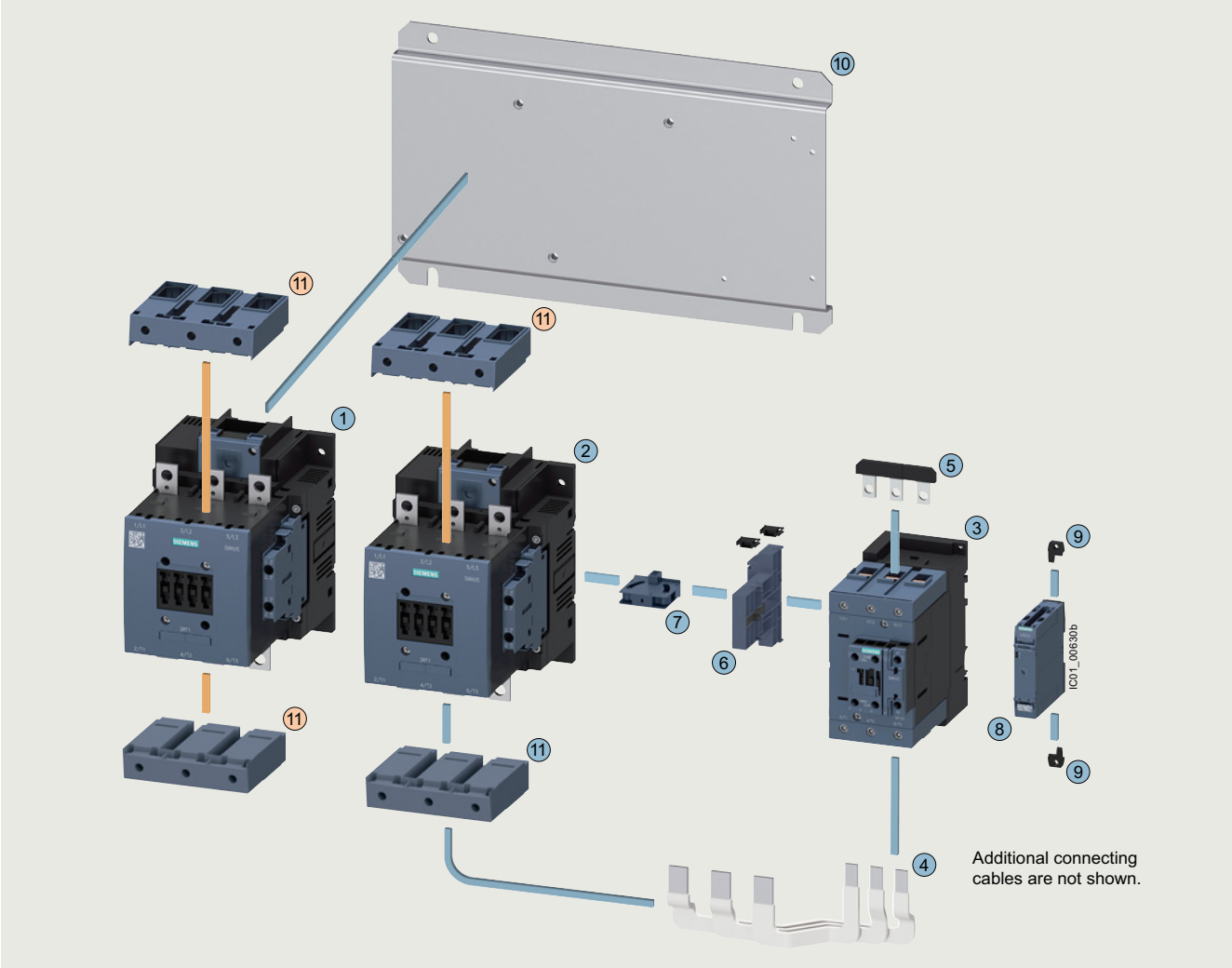
## Contactor assemblies for star-delta (wye-delta) starting consisting of SIRIUS 3RT and 3TF6 contactors, up to 710 kW

***Contactor assemblies for star-delta (wye-delta) starting for customer assembly · Size S6-S6-S3 · Up to 160 kW***




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| (11) Box terminal blocks | 3RT1955-4G | 3/110 |

### Contactor assemblies for star-delta (wye-delta) starting for customer assembly

| Individual parts | | Type Q11 | Q13 | Q12 | Page |
|---|---|---|---|---|---|
| (1)(2)(3) | Contactors, 110 kW | 3RT1054 | 3RT1054 | 3RT2045 | 3/51, 3/59, 3/63 ... 3/66 |
| (1)(2)(3) | Contactors, 132 kW | 3RT1055 | 3RT1055 | 3RT2046 | 3/51, 3/59, 3/63 ... 3/66 |
| (1)(2)(3) | Contactors, 160 kW | 3RT1056 | 3RT1056 | 3RT2047 | 3/51, 3/59, 3/63 ... 3/66 |
| (4) | Assembly kit S6-S6-S3 for contactors with box terminals consisting of: Wiring modules, bottom | 3RA1953-3G | | | 3/106 |
| (5) | Star jumper S3 | 3RT1946-4BA31 | | | 3/107 |
| (6) | Adapter for the mechanical interlock between S6 and S3 (including two connectors) | 3RA1954-2G[1)] | | | 3/108 |
| (7) | Mechanical interlock between S6 and S3 | 3RA1954-2A | | | 3/108 |
| (8) | Timing relay with star-delta (wye-delta) function | 3RP257. | | | 10/34 |
| (9) | Push-in lugs for star-delta (wye-delta) timing relays | 3ZY1311-0AA00 | | | 10/35 |
| (10) | Base plate star-delta (wye-delta) | 3RA1952-2E | | | 3/113 |
| (11) | Box terminal block | 3RT1955-4G | | | 3/110 |

[1)] The 3RA1954-2G adapter cannot be used in conjunction with 3RT204..-.KB coupling contactors, size S3.

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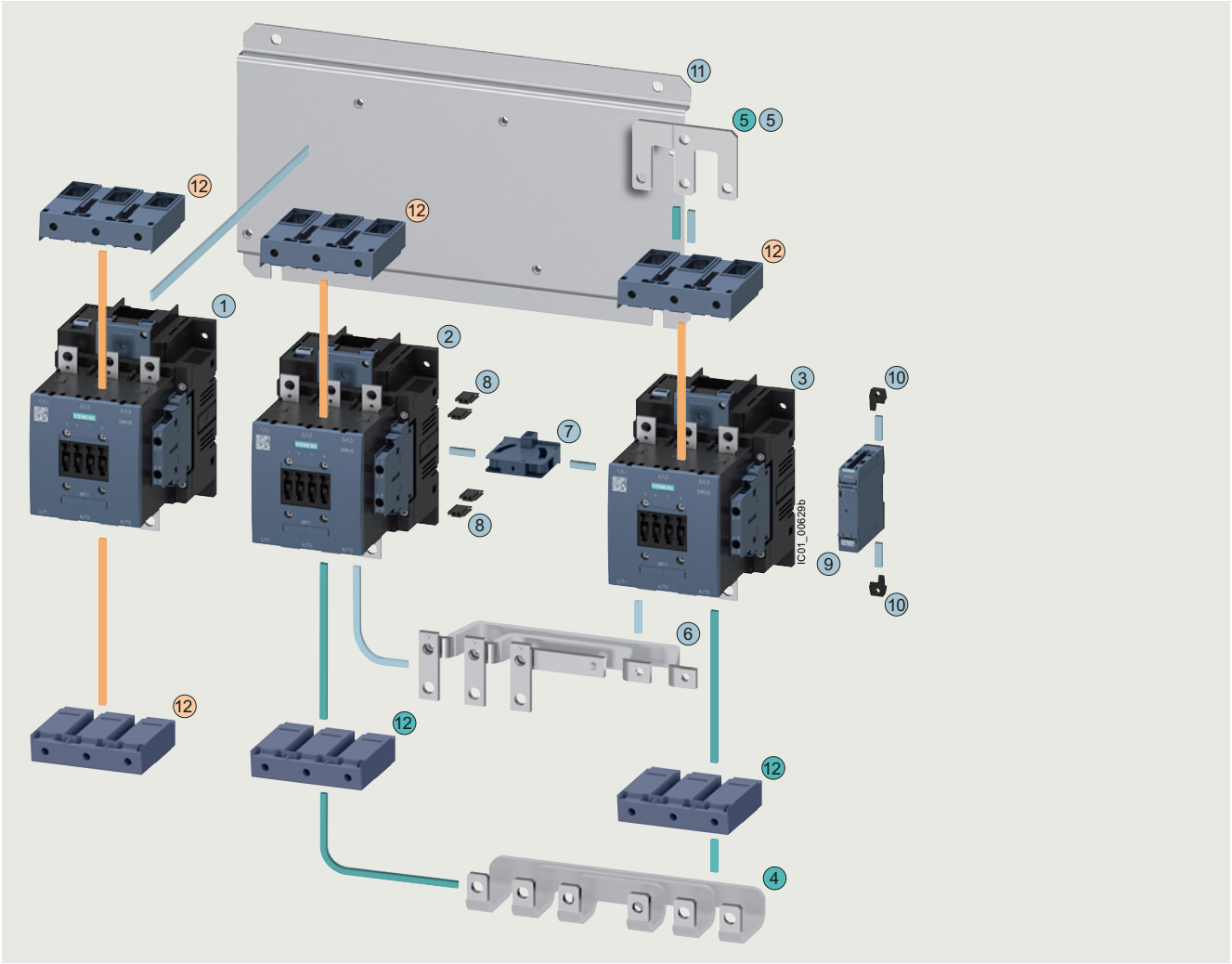
## Contactor assemblies for star-delta (wye-delta) starting consisting of SIRIUS 3RT and 3TF6 contactors, up to 710 kW

***Contactor assemblies for star-delta (wye-delta) starting for customer assembly · Size S6-S6-S6 · Up to 160 kW***

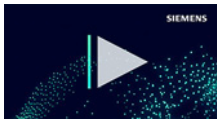



### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| 12 Box terminal blocks | 3RT1955-4G | 3/110 |

### Contactor assemblies for star-delta (wye-delta) starting for customer assembly

| Individual parts | | Type | | | Page |
|---|---|---|---|---|---|
| | | Q11 | Q13 | Q12 | |
| 1 2 3 | Contactors, 110 kW | 3RT1054 | 3RT1054 | 3RT1054 | 3/64 ... 3/66 |
| 1 2 3 | Contactors, 132 kW | 3RT1055 | 3RT1055 | 3RT1055 | 3/64 ... 3/66 |
| 1 2 3 | Contactors, 160 kW | 3RT1056 | 3RT1056 | 3RT1056 | 3/64 ... 3/66 |
| 4 5 | Assembly kit S6-S6-S6 for contactors with box terminals consisting of: 4 Link rails, bottom 5 Star jumper S6 | 3RA1953-2B | | | 3/106 |
| 5 6 | Assembly kit S6-S6-S6 for contactors without box terminals consisting of: 6 Link rails, bottom 5 Star jumper S6 | 3RA1953-2N | | | 3/106 |
| 7 | Mechanical interlock | 3RA1954-2A | | | 3/108 |
| 8 | Four connectors | 3RA1932-2D | | | 3/108 |
| 9 | Timing relay with star-delta (wye-delta) function | 3RP257. | | | 10/34 |
| 10 | Push-in lugs for star-delta (wye-delta) timing relays | 3ZY1311-0AA00 | | | 10/35 |
| 11 | Base plate star-delta (wye-delta) | 3RA1952-2F | | | 3/113 |
| 12 | Box terminal block | 3RT1955-4G | | | 3/110 |




Video: SIRIUS contactor assembly for star-delta (wye-delta) starting – configuration example with 75 kW contactors

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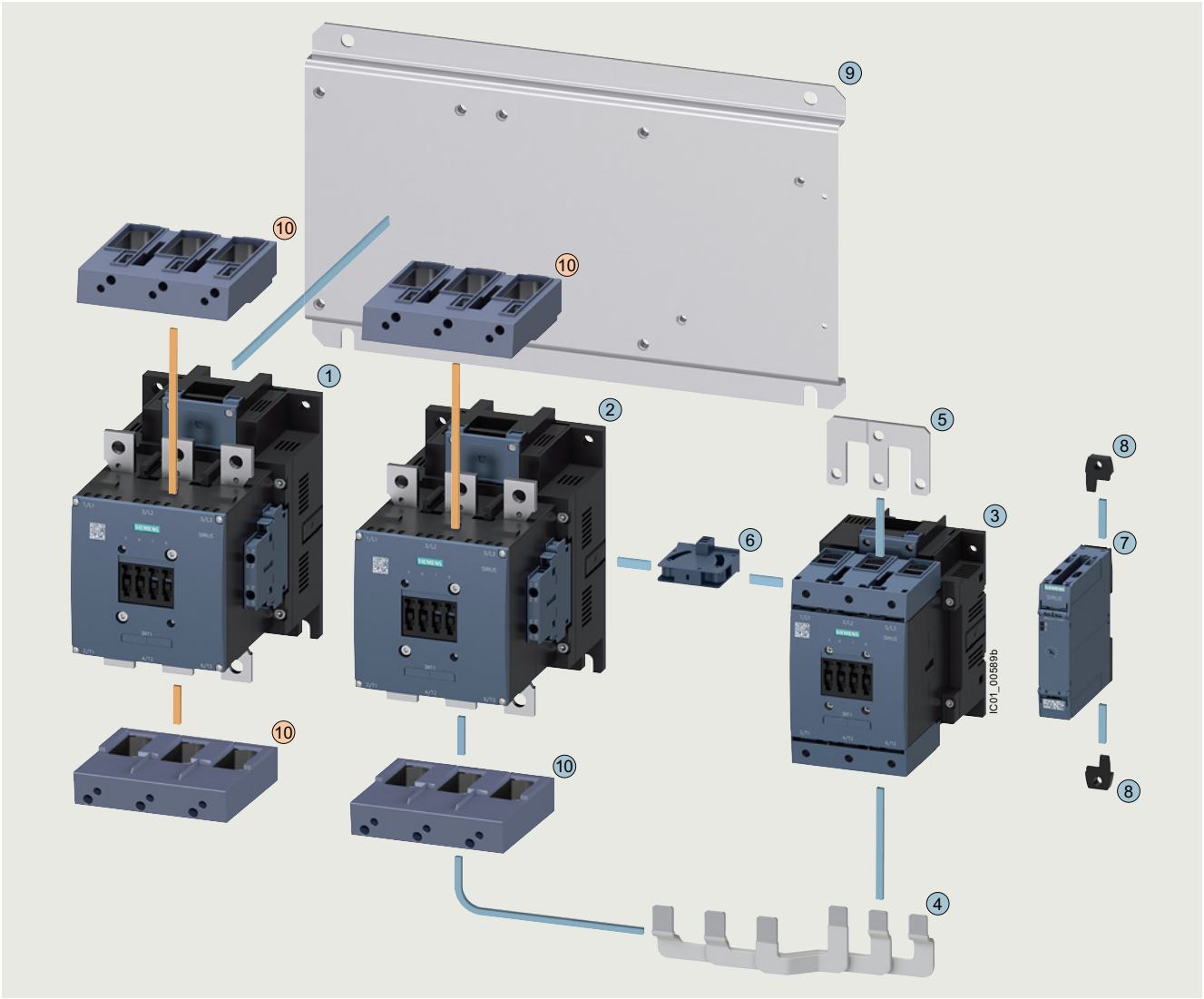
3

## Contactor assemblies for star-delta (wye-delta) starting consisting of SIRIUS 3RT and 3TF6 contactors, up to 710 kW

***Contactor assemblies for star-delta (wye-delta) starting for customer assembly · Size S10-S10-S6 · Up to 250 kW***




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| 10 Box terminal blocks | 3RT1966-4G | 3/110 |

### Contactor assemblies for star-delta (wye-delta) starting for customer assembly

| Individual parts | | Type | | | Page |
|---|---|---|---|---|---|
| | | Q11 | Q13 | Q12 | |
| 1 2 3 | Contactors, 200 kW | 3RT1.64 | 3RT1.64 | 3RT1054 | 3/64 ... 3/66, 3/130 |
| 1 2 3 | Contactors, 250 kW | 3RT1.65 | 3RT1.65 | 3RT1055 | 3/64 ... 3/66, 3/130 |
| 4 | Assembly kit S10-S10-S6 for contactors with box terminals consisting of: Wiring modules, bottom | 3RA1963-3E | | | 3/106 |
| 5 | Star jumper S6 | 3RT1956-4BA31 | | | 3/107 |
| 6 | Mechanical interlock between S10 and S6 | 3RA1954-2A | | | 3/108 |
| 7 | Timing relay with star-delta (wye-delta) function | 3RP257. | | | 10/34 |
| 8 | Push-in lugs for star-delta (wye-delta) timing relays | 3ZY1311-0AA00 | | | 10/35 |
| 9 | Base plate star-delta (wye-delta) | 3RA1962-2E | | | 3/113 |
| 10 | Box terminal block | 3RT1966-4G | | | 3/110 |

Video: SIRIUS contactor assembly for star-delta (wye-delta) starting – configuration example with 75 kW contactors

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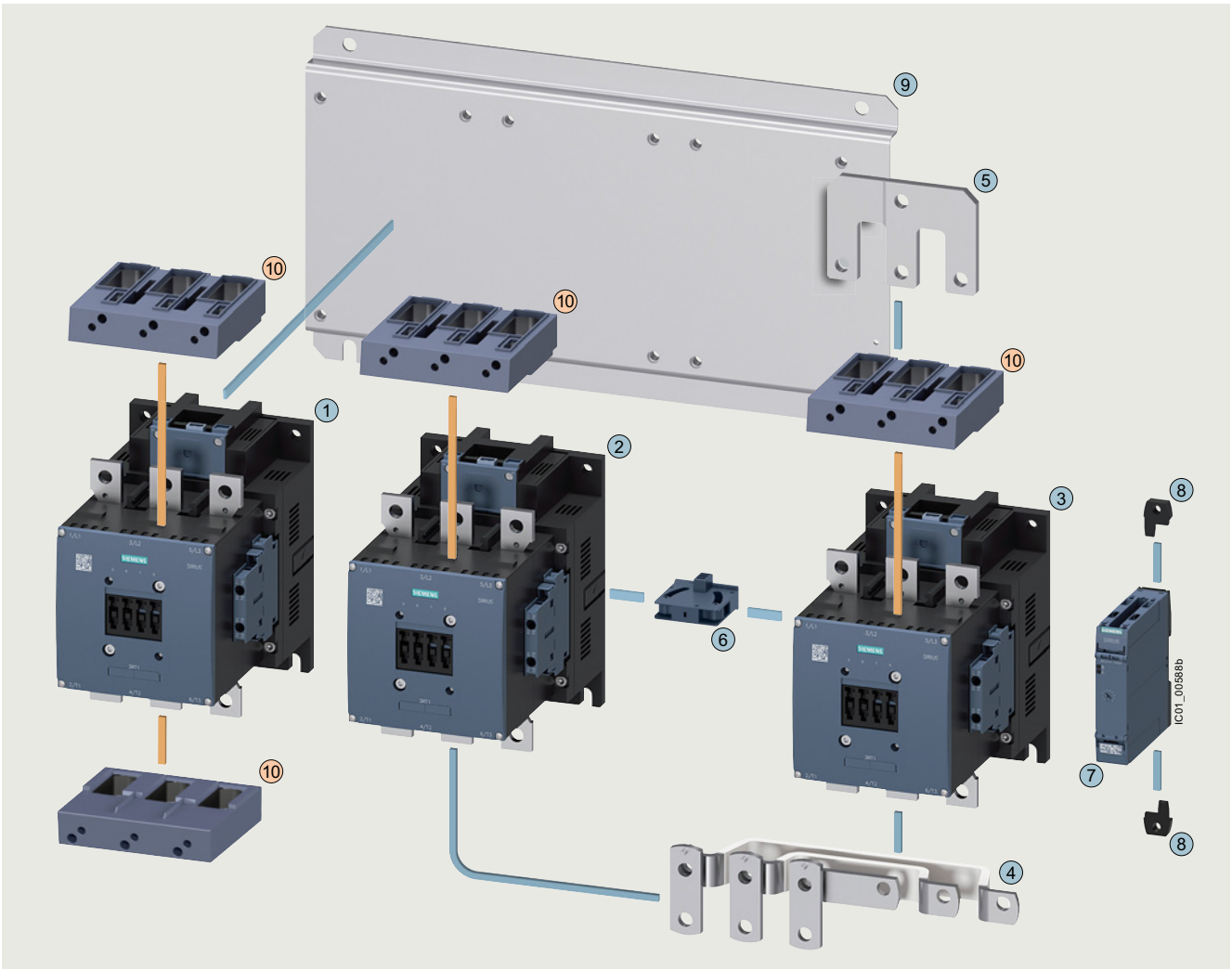
## Contactor assemblies for star-delta (wye-delta) starting consisting of SIRIUS 3RT and 3TF6 contactors, up to 710 kW

***Contactor assemblies for star-delta (wye-delta) starting for customer assembly · Size S10-S10-S10 · Up to 250 kW***

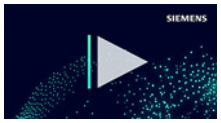



### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| ⑩ Box terminal blocks | 3RT1966-4G | 3/110 |

### Contactor assemblies for star-delta (wye-delta) starting for customer assembly

| Individual parts | | Type Q11 | Q13 | Q12 | Page |
|---|---|---|---|---|---|
| ①②③ | Contactors, 200 kW | 3RT1.64 | 3RT1.64 | 3RT1.64 | 3/64 ... 3/66, 3/130 |
| ①②③ | Contactors, 250 kW | 3RT1.65 | 3RT1.65 | 3RT1.65 | 3/64 ... 3/66, 3/130 |
| ④⑤ | Assembly kit S10-S10-S10 for contactors without box terminals consisting of: | 3RA1963-2B | | | 3/106 |
| | ④ Link rails, bottom | | | | |
| | ⑤ Star jumper S10 | | | | |
| ⑥ | Mechanical interlock | 3RA1954-2A | | | 3/108 |
| ⑦ | Timing relay with star-delta (wye-delta) function | 3RP257. | | | 10/34 |
| ⑧ | Push-in lugs for star-delta (wye-delta) timing relays | 3ZY1311-0AA00 | | | 10/35 |
| ⑨ | Base plate star-delta (wye-delta) | 3RA1962-2F | | | 3/113 |




Video: SIRIUS contactor assembly for star-delta (wye-delta) starting – configuration example with 75 kW contactors

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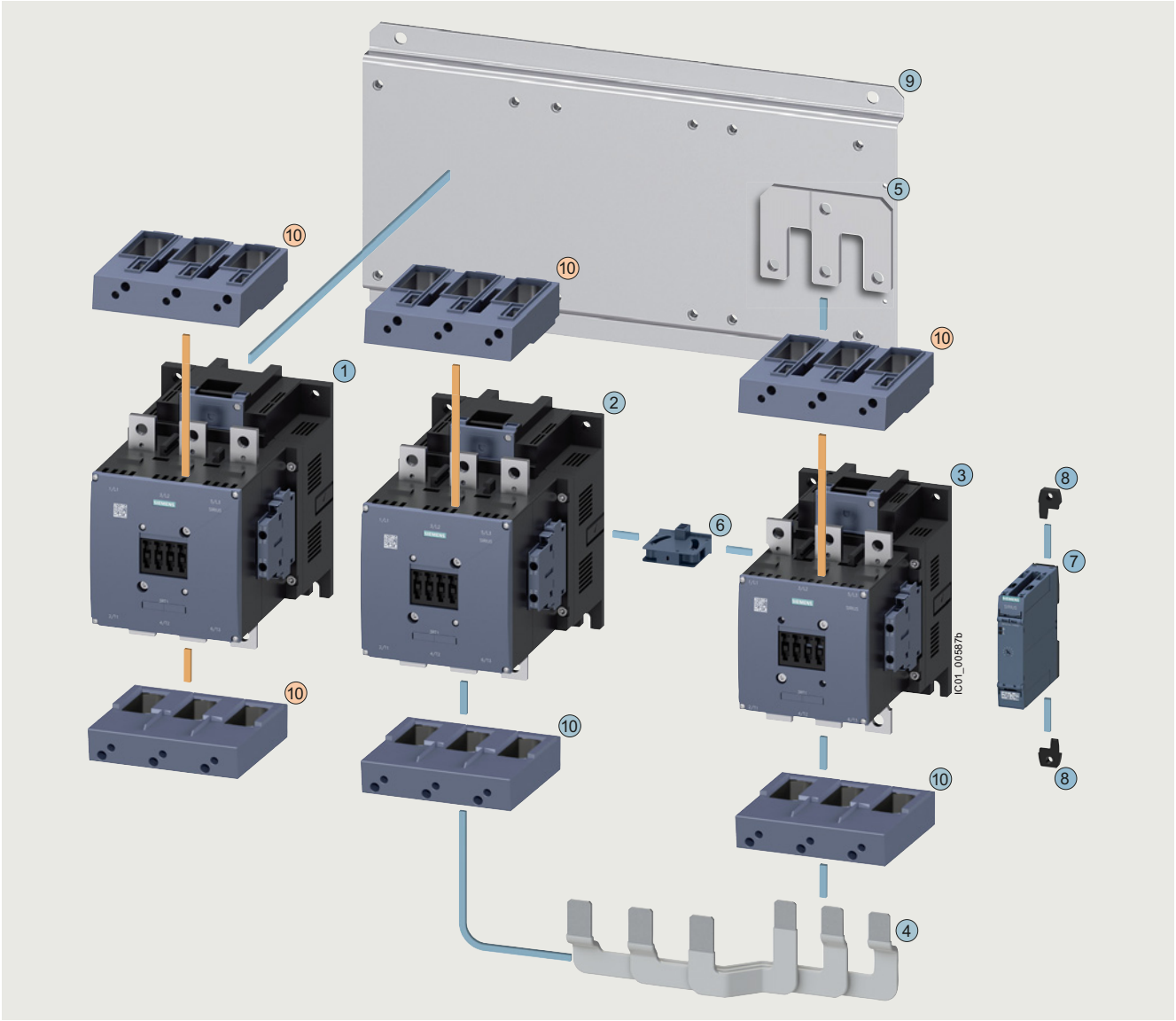
## Contactor assemblies for star-delta (wye-delta) starting consisting of SIRIUS 3RT and 3TF6 contactors, up to 710 kW

***Contactor assemblies for star-delta (wye-delta) starting for customer assembly · Size S12-S12-S10 · Up to 500 kW***




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| ⑩ Box terminal blocks | 3RT1966-4G | 3/110 |

### Contactor assemblies for star-delta (wye-delta) starting for customer assembly

| Individual parts | | Type Q11 | Q13 | Q12 | Page |
|---|---|---|---|---|---|
| ①②③ | Contactors, 355 kW | 3RT1.75 | 3RT1.75 | 3RT1.64 | 3/64 ... 3/66, 3/130 |
| ①②③ | Contactors, 400 kW | 3RT1.75 | 3RT1.75 | 3RT1.65 | 3/64 ... 3/66, 3/130 |
| ①②③ | Contactors, 500 kW | 3RT1.76 | 3RT1.76 | 3RT1.66 | 3/64 ... 3/66, 3/130 |
| ④ | Assembly kit S12-S12-S10 for contactors with box terminals consisting of: Wiring modules, bottom | 3RA1973-3E | | | 3/106 |
| ⑤ | Star jumper S10 | 3RT1966-4BA31 | | | 3/107 |
| ⑥ | Mechanical interlock between S12 and S10 | 3RA1954-2A | | | 3/108 |
| ⑦ | Timing relay with star-delta (wye-delta) function | 3RP257. | | | 10/34 |
| ⑧ | Push-in lugs for star-delta (wye-delta) timing relays | 3ZY1311-0AA00 | | | 10/35 |
| ⑨ | Base plate star-delta (wye-delta) | 3RA1972-2E | | | 3/113 |
| ⑩ | Box terminal blocks | 3RT1966-4G | | | 3/110 |

Video: SIRIUS contactor assembly for star-delta (wye-delta) starting – configuration example with 75 kW contactors

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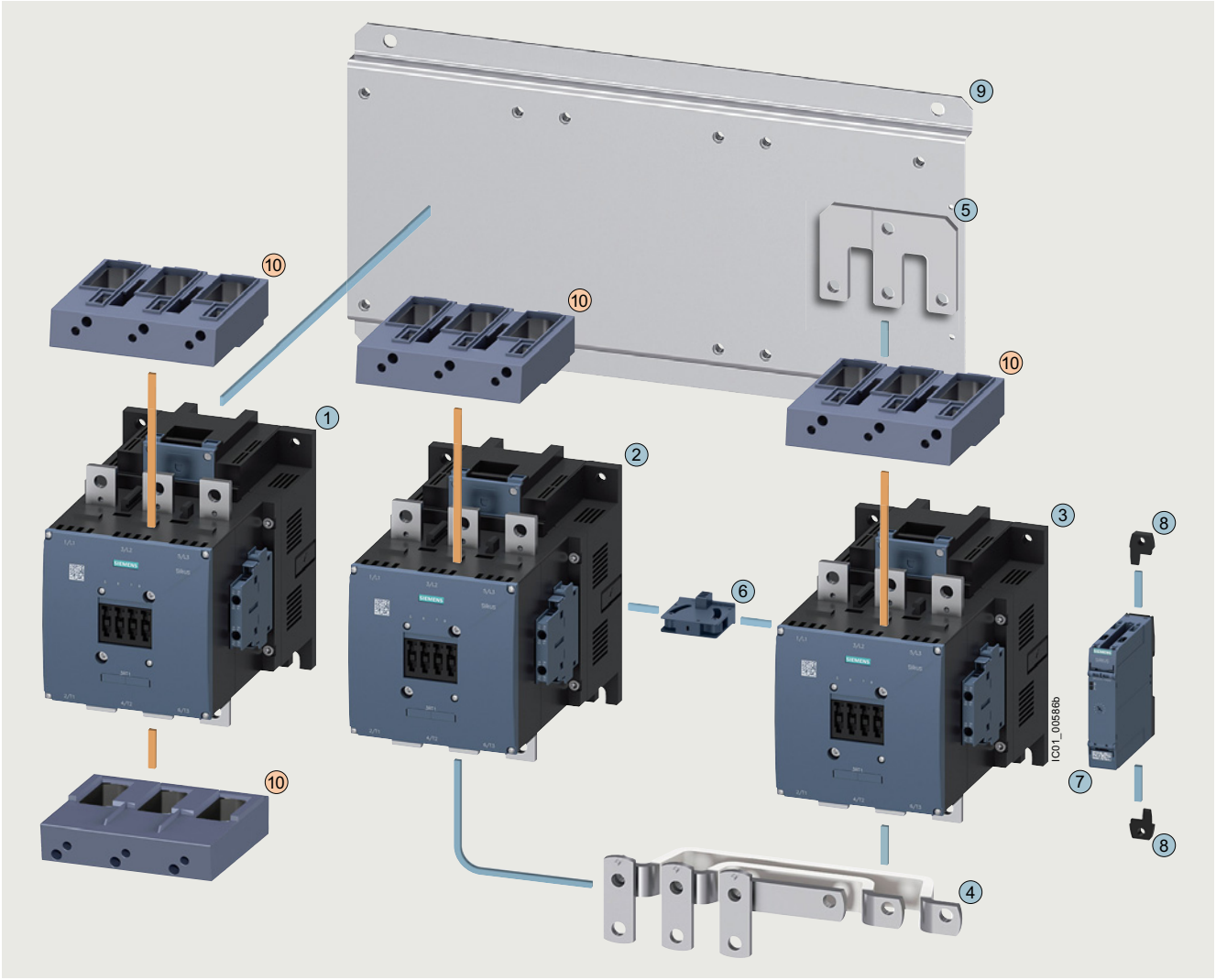
## Contactor assemblies for star-delta (wye-delta) starting consisting of SIRIUS 3RT and 3TF6 contactors, up to 710 kW

***Contactor assemblies for star-delta (wye-delta) starting for customer assembly · Size S12-S12-S12 · Up to 500 kW***




### Mountable accessories (optional)

| To be ordered separately | Type | Page |
|---|---|---|
| (10) Box terminal blocks | 3RT1966-4G | 3/110 |

### Contactor assemblies for star-delta (wye-delta) starting for customer assembly

| Individual parts | | Type Q11 | Q13 | Q12 | Page |
|---|---|---|---|---|---|
| (1)(2)(3) | Contactors, 400 kW | 3RT1.75 | 3RT1.75 | 3RT1.75 | 3/64 ... 3/66, 3/130 |
| (1)(2)(3) | Contactors, 500 kW | 3RT1.76 | 3RT1.76 | 3RT1.76 | 3/64 ... 3/66, 3/130 |
| (4)(5) | Assembly kit S12-S12-S12 for contactors without box terminals consisting of: | 3RA1973-2B | | | 3/106 |
| | (4) Link rails, bottom | | | | |
| | (5) Star jumper S12 | | | | |
| (6) | Mechanical interlock | 3RA1954-2A | | | 3/108 |
| (7) | Timing relay with star-delta (wye-delta) function | 3RP257. | | | 10/34 |
| (8) | Push-in lugs for star-delta (wye-delta) timing relays | 3ZY1311-0AA00 | | | 10/35 |
| (9) | Base plate star-delta (wye-delta) | 3RA1972-2F | | | 3/113 |

Video: SIRIUS contactor assembly for star-delta (wye-delta) starting – configuration example with 75 kW contactors

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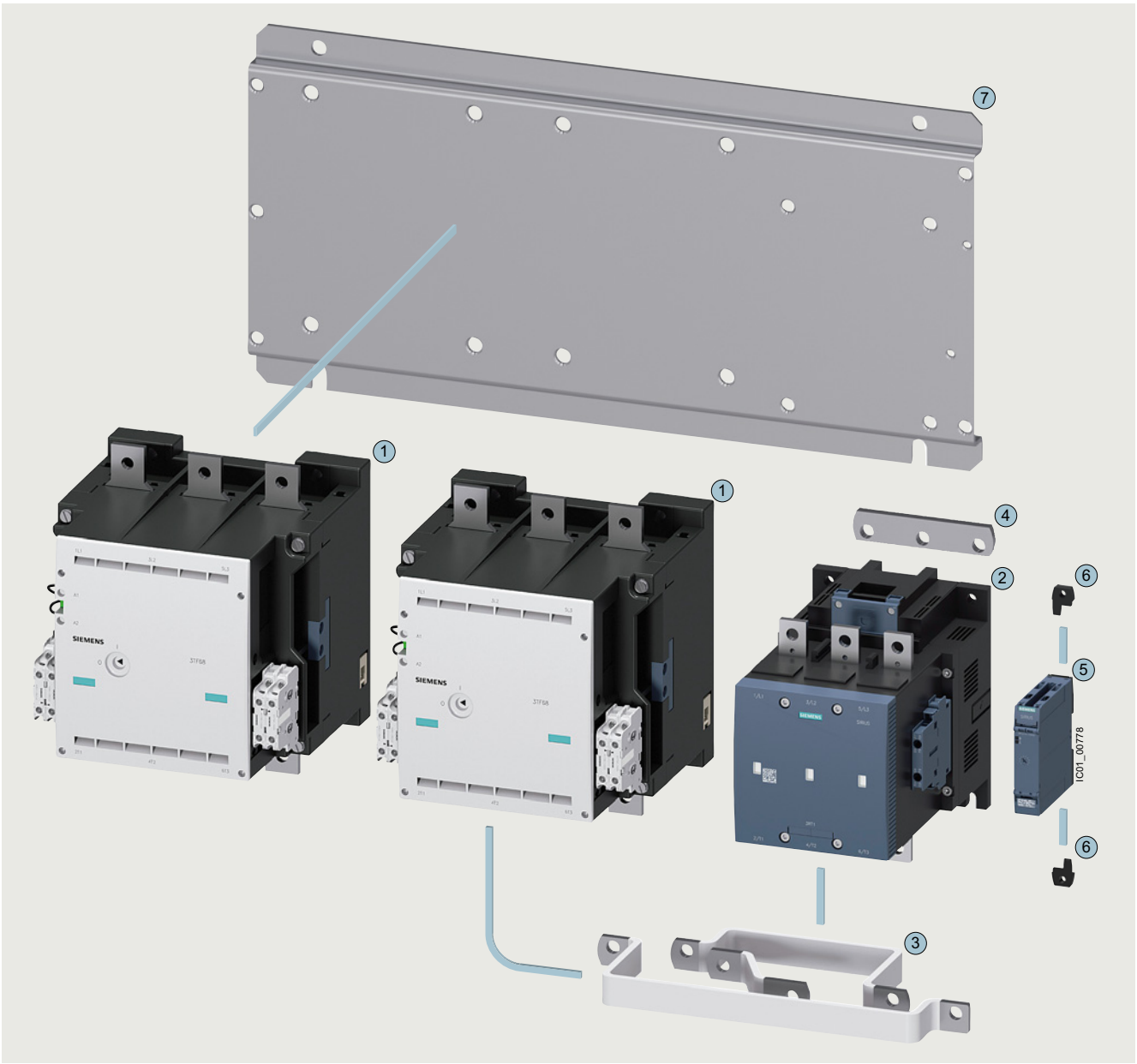
## Contactor assemblies for star-delta (wye-delta) starting consisting of SIRIUS 3RT and 3TF6 contactors, up to 710 kW

***Contactor assemblies for star-delta (wye-delta) starting for customer assembly · Sizes 14-14-S12 · Up to 710 kW***




### Contactor assemblies for star-delta (wye-delta) starting for customer assembly

| Individual parts | | Type | | | Page |
|---|---|---|---|---|---|
| | | Q11 | Q13 | Q12 | |
| ①② | Contactors, 710 kW | 3TF68 | 3TF68 | 3RT127. | 3/130 ... 3/132 |
| ③④ | Assembly kit 14-14-S12<br>for contactors without box terminals<br>consisting of: | 3TX7680-1B | | | 3/135 |
| | ③ Wiring modules on the top and bottom | | | | |
| | ④ Star jumper S12 | | | | |
| ⑤ | Timing relay with star-delta (wye-delta) function | 3RP257. | | | 10/34 |
| ⑥ | Push-in lugs for star-delta (wye-delta) timing relays | 3ZY1311-0AA00 | | | 10/35 |
| ⑦ | Base plate star-delta (wye-delta) | 3TX7681-1B | | | 3/135 |

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| | |
|---|---|
| | **Price groups**<br>PG 41A, 41B |
| 4/2 | **Introduction** |
| | **Contactors for special applications** |
| 4/7 | SIRIUS 3RT.4 contactors for low or non-inductive loads (AC-1), 3-pole up to 2 650 A |
| 4/21 | SIRIUS 3RT.3 contactors, 4-pole, up to 525 A |
| 4/36 | SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC |
| 4/42 | SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole |
| 4/52 | SIRIUS 3RT23 to 3RT26, 3RT14 contactors |
| | Contactors for railway applications |
| 4/54 | - SIRIUS 3RT contactors with extended operating range, 3-pole |
| 4/63 | - SIRIUS 3RH2 contactor relays with extended operating range |
| 4/66 | - 3TH4 contactor relays, 8-pole |
| 4/68 | - 3TC contactors for switching DC voltage, 2-pole |
| 4/70 | 3TC contactors for switching DC voltage, 1- and 2-pole |
| 3/138 | **3TG10 power relays/miniature contactors** |

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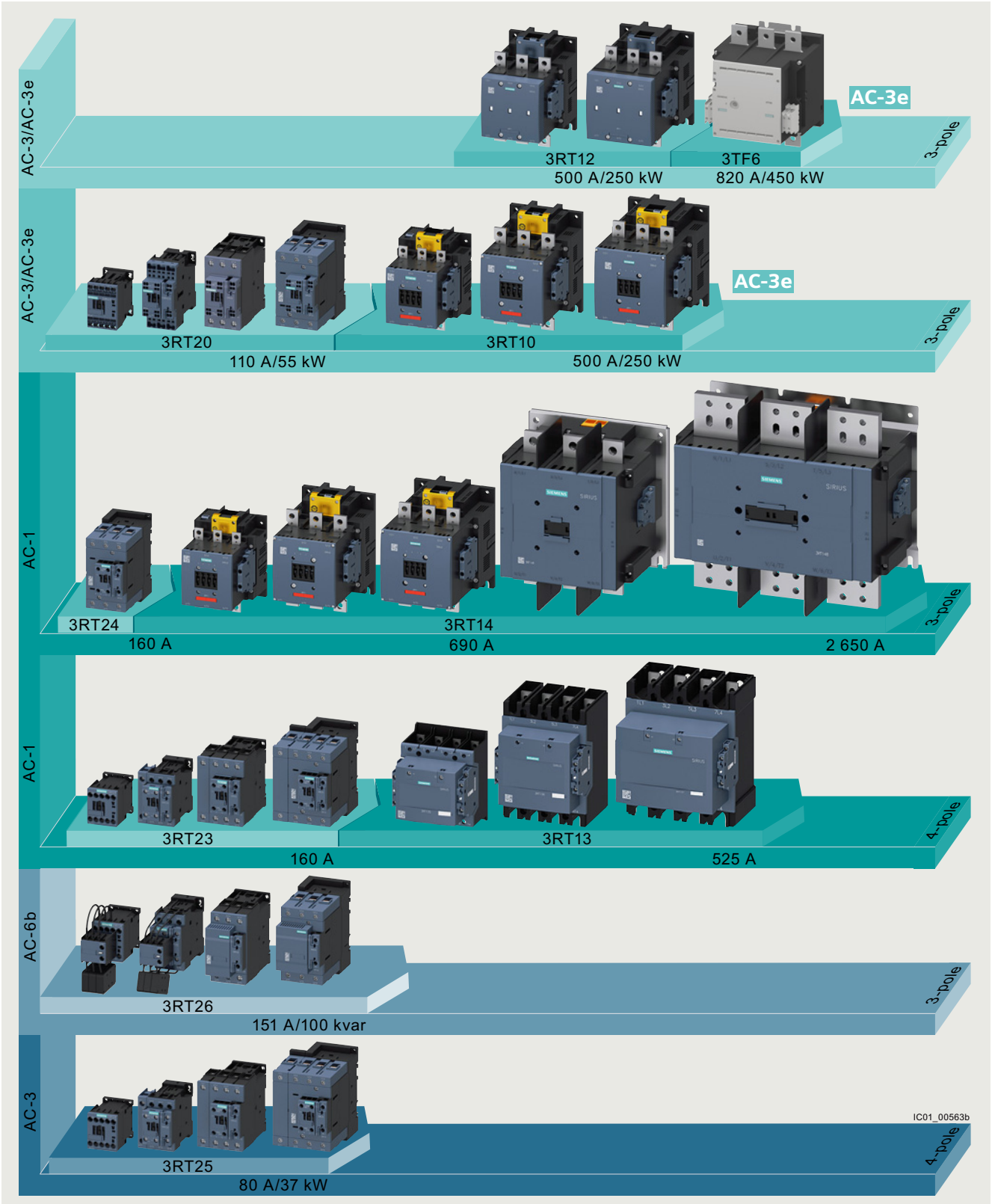
## Overview




Overview of the 3RT and 3TF contactors

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| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius | Conversion tool, see www.siemens.com/conversion-tool |
| Industry Mall, see www.siemens.com/product?3RT_3TK_3TC | TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Contactor |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Size | | | **S3** | | **S6** | **S10** | | **S12** | |
| Type | | | 3RT244. | | 3RT1456 | 3RT146. | | 3RT1476 | |
| **3-pole 3RT244 and 3RT145 to 3RT147 contactors** | | | | | | | | | |
| Type | | | **3RT2446** | **3RT2448** | **3RT1456** | **3RT1466** | **3RT1467** | **3RT1476** | |
| Number of main contacts | | | 3 NO | | 3 NO | 3 NO | | 3 NO | |
| AC, AC/DC operation | | | (p. 4/16) | | (p. 4/17, 4/18) | (p. 4/17, 4/18) | | (p. 4/17, 4/18) | |
| **AC-1** | | | | | | | | | |
| $U_i$ | | V | 1 000 | | | | | | |
| $U_e$ | | V | 690 | | | | | | |
| $I_e$ **up to 690 V** | **40 °C** | **A** | **140** | **160** | **275** | **400** | **500** | **690** | |
| | 60 °C | A | 130 | 140 | 250 | 380 | 450 | Standard operating mechanism: 650, solid-state operating mechanism: 600 | |

| **Accessories for contactors** | | | | |
|---|---|---|---|---|
| **Auxiliary switches** | **3RH29, 3RA28** | (p. 3/87 ... 3/95) | **3RH19, 3RT1926** | (p. 3/90, 3/92, 3/94, 3/96) |
| **Function modules (direct-on-line starting, star-delta (wye-delta) starting)** | **3RA281.** | (p. 3/100) | **--** | |
| **Terminal covers** | **3RT2946-4EA4** | (p. 3/112) | **3RT1956-4EA.** | (p. 3/112) |
| **Box terminal blocks** | **--** | | **3RT1955/56-4G** | (p. 3/110) |
| **Surge suppressors** | **3RT2936, 3RT2946** | (p. 3/97, 3/98) | **3RT1956-1C** (RC element) | (p. 3/98) |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Type | | | 3RT1481, 3RT1482 | | 3RT1483 | 3RT1485, 3RT1486 | | 3RT1487 | |
| **3-pole 3RT148 contactors** | | | | | | | | | |
| Type | | | **3RT1481** | **3RT1482** | **3RT1483** | **3RT1485** | **3RT1486** | **3RT1487** | |
| Number of main contacts | | | 3 NO | | | | | | |
| AC/DC operation | | | (p. 4/19) | | | | | | |
| **AC-1** | | | | | | | | | |
| $U_i$ | | V | 1 000 | | | | | | |
| $U_e$ | | V | 1 000 | | | | | | |
| $I_e$ | **40 °C** | **A** | **900** | **1 050** | **1 260** | **1 700** | **2 100** | **2 650** | |

| **Accessories for contactors** | | |
|---|---|---|
| **Second auxiliary switch, lateral** | **3RH1981-1JA11** | (p. 4/19) |
| **Spare parts for contactors** | | |
| **First auxiliary switch, lateral** | **3RH1981-1DA11** | (p. 4/20) |
| **Phase barriers** | **3RT1983-4AA1** (p. 4/20) | **3RT1987-4AA1** (p. 4/20) |
| **Withdrawable coils** | **3RT1982-5A.31** (p. 4/20) | **3RT1983-5AP31** (p. 4/20) **3RT1987-5AP31** (p. 4/20) |

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## Introduction

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | **S00** | | **S0** | | | **S2** | | **S3** | | |
| Type | | 3RT231. | | 3RT232. | | | 3RT233. | | 3RT234. | | |
| **4-pole 3RT23 contactors** | | | | | | | | | | | |
| Type | | **3RT2316** | **3RT2317** | **3RT2325** | **3RT2326** | **3RT2327** | **3RT2336** | **3RT2337** | **3RT2344** | **3RT2346** | **3RT2348** |
| Number of main contacts | | 4 NO | | 4 NO | | | 4 NO | | 4 NO | | |
| AC, DC and AC/DC operation | | (p. 4/29, 4/31) | | (p. 4/29 ... 4/31) | | | (p. 4/29 ... 4/33) | | (p. 4/29 ... 4/33) | | |
| **AC-1** | | | | | | | | | | | |
| **$U_i$** | V | 690 | | | | | | | | | |
| **$U_e$** | V | 690 | | | | | | | | | |
| **$I_e$ up to 690 V** | **40 °C A** | **18** | **22** | **35** | **40** | **50** | **60** | **110** | **110** | **140** | **160** |
| | 60 °C A | 16 | 20 | 30 | 35 | 42 | 55 | 95 | 100 | 130 | 140 |
| **AC-3** | | | | | | | | | | | |
| **$I_e$ up to 400 V** | A | 9 | 12 | 15.5 | 15.5 | 15.5 | -- | -- | -- | -- | -- |
| **$P$ at 400 V** | **kW** | **4** | **5.5** | **7.5** | **7.5** | **7.5** | **--** | **--** | **--** | **--** | **--** |
| **Accessories for contactors** | | | | | | | | | | | |
| **Auxiliary switches** | | **3RH29, 3RA28** | | | | | | | | | (p. 3/87 ... 3/95) |
| **Function modules (direct-on-line starting, star-delta (wye-delta) starting)** | | **3RA281.** | | | | | | | | | (p. 3/100) |
| **Terminal covers** | | **--** | | | | | **3RT2936-4EA4** | (p. 3/112) | **3RT2946-4EA4** | | (p. 3/112) |
| **Surge suppressors** | | **3RT2916** | (p. 3/97, 3/98) | | | | **3RT2936** | (p. 3/97, 3/98) | **3RT2936, 3RT2946** | | (p. 3/97, 3/98) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Size | | **S6** | | **S10** | | **S12** | | |
| Type | | 3RT1355 | | 3RT136. | | 3RT137. | | |
| **4-pole 3RT13 contactors** | | | | | | | | |
| Type | | **3RT1355** | | **3RT1363** | **3RT1364** | **3RT1373** | **3RT1374** | **3RT1375** |
| Number of main contacts | | 4 NO | | 4 NO | | 4 NO | | |
| AC/DC operation | | (p. 4/34) | | (p. 4/34) | | (p. 4/34) | | |
| **AC-1** | | | | | | | | |
| **$U_i$** | V | 1 000 | | | | | | |
| **$U_e$** | V | 690 | | 1 000 | | | | |
| **$I_e$** | 40 °C A | 200 | | 275 | 350 | 400 | 500 | 525 |
| **Accessories for contactors** | | | | | | | | |
| **Second auxiliary switch, lateral** | | **3RH1951-1SA11** | | | | | | (p. 4/35) |
| **Terminal covers** | | **3RT1956-4EB10** | (p. 4/35) | **3RT1966-4EB10** | (p. 4/35) | **3RT1976-4EB10** | | (p. 4/35) |
| **Mechanical interlocks** | | **3RA1954-3A** | | | | | | (p. 4/35) |
| **Bus connectors offset** | | **--** | | **3RT1966-4D** | (p. 4/35) | **3RT1976-4D** | | (p. 4/35) |
| **Spare parts for contactors** | | | | | | | | |
| **First auxiliary switch, lateral** | | **3RH1951-1TA11** | | | | | | (p. 4/35) |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | **S00** | | | **S0** | **S2** | | **S3** | | |
| Type | | | 3RT251. | | | 3RT252. | 3RT253. | | 3RT254. | | |
| **4-pole 3RT25 contactors** | | | | | | | | | | | |
| Type | | | **3RT2516** | **3RT2517** | **3RT2518** | **3RT2526** | **3RT2535** | **3RT2536** | **3RT2544** | **3RT2545** | |
| Number of main contacts | | | 2 NO + 2 NC | | | 2 NO + 2 NC | 2 NO + 2 NC | | 2 NO + 2 NC | | |
| AC, DC and AC/DC operation | | | (p. 4/39, 4/40) | | | (p. 4/39, 4/40) | (p. 4/39, 4/41) | | (p. 4/39, 4/41) | | |
| **AC-1** | | | | | | | | | | | |
| **$U_i$** | | V | 690 | | | | | | | | |
| **$U_e$** | | V | 690 | | | | | | | | |
| **$I_e$ up to 690 V** | **40 °C** | **A** | **18** | **22** | **22** | **40** | **60** | **70** | **100** | **125** | |
| | 60 °C | A | 16 | 20 | 20 | 35 | 55 | 60 | 90 | 105 | |
| **AC-3** | | | | | | | | | | | |
| **$I_e$ up to 400 V** | NO | A | 9 | 12 | 16 | 25 | 35 | 41 | 65 | 80 | |
| | NC | A | 9 | 9 | 9 | 25 (20)[1] | 35 | 41 | 65 | 80 | |
| ***P*** | | | | | | | | | | | |
| **At 400 V** | **NO** | **kW** | **4** | **5.5** | **7.5** | **11** | **18.5** | **22** | **30** | **37** | |
| | **NC** | **kW** | **4** | **4** | **4** | **11 (7.5)[1]** | **18.5** | **22** | **30** | **37** | |
| At 230 V | NO | kW | 2.2 | 3/2.2 | 4/2.2 | 5.5 | 11 | 11 | 18.5 | 22 | |
| | NC | kW | 2.2 | 3/2.2 | 4/2.2 | 5.5 | 11 | 11 | 18.5 | 22 | |

| **Accessories for contactors** | | | | |
|---|---|---|---|---|
| **Auxiliary switches** | **3RH29, 3RA28** | | | (p. 3/87 ... 3/95) |
| **Function modules (direct-on-line starting, star-delta (wye-delta) starting)** | **3RA281.** | | | (p. 3/100) |
| **Terminal covers** | **--** | **3RT2936-4EA4** (p. 3/112) | **3RT2946-4EA4** (p. 3/112) | |
| **Surge suppressors** | **3RT2916** (p. 3/97, 3/98) | **3RT2926** (p. 3/97, 3/98) | **3RT2936** (p. 3/97, 3/98) | **3RT2936, 3RT2946** (p. 3/97, 3/98) |

[1] The value in brackets applies to the NC for DC operation.

### *Further contactors*

- SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole, see page 4/42 onwards
- 3TC contactors for switching DC voltage, 1-pole and 2-pole, see page 4/70 onwards
- Contactors for railway applications
  - SIRIUS 3RT contactors with extended operating range, 3-pole, see page 4/54 onwards
  - SIRIUS 3RH2 contactor relays with extended operating range, see page 4/65
  - 3TH4 contactor relays, 8-pole, see page 4/66 onwards

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## Introduction

### *Connection methods*

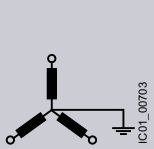
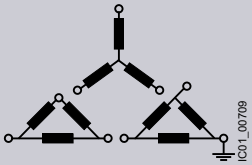
The following connection options are available for 3RT contactors depending on the size and version:

- 3RT2 contactors
  - Sizes S00 and S0: screw terminals or spring-loaded terminals both for the main as well as for the auxiliary and control circuits
  - Sizes S2 and S3: screw terminals (complete devices) or spring-loaded terminals (auxiliary circuit only)
- 3RT13 contactors, sizes S6 to S12: Busbar connections (partly with bus connectors offset), auxiliary and control circuits with screw terminals
- 3RT14 contactors: Busbar connections

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals |
| | Busbar connections |
| | The connection method is indicated in the corresponding tables by the symbols shown on orange backgrounds. |

### *Voltage data*

The data for 3-phase power systems according to IEC 60947-4-1 are valid for the following forms of power supply:

| **Voltage data** $U_e$ | **Line system configurations** | |
|---|---|---|
| | **Three-phase four-wire systems**   | **Three-phase three-wire systems**   |
| V | V | V |
| 230 | -- | 230 |
| 400 | 230/400 | 400 |
| 440 | 260/440 | 440 |
| 500 | -- | 500 |
| 690 | 400/690 | 690 (only from size S3) |
| 1 000 | -- | 1 000 |

-- Not specified

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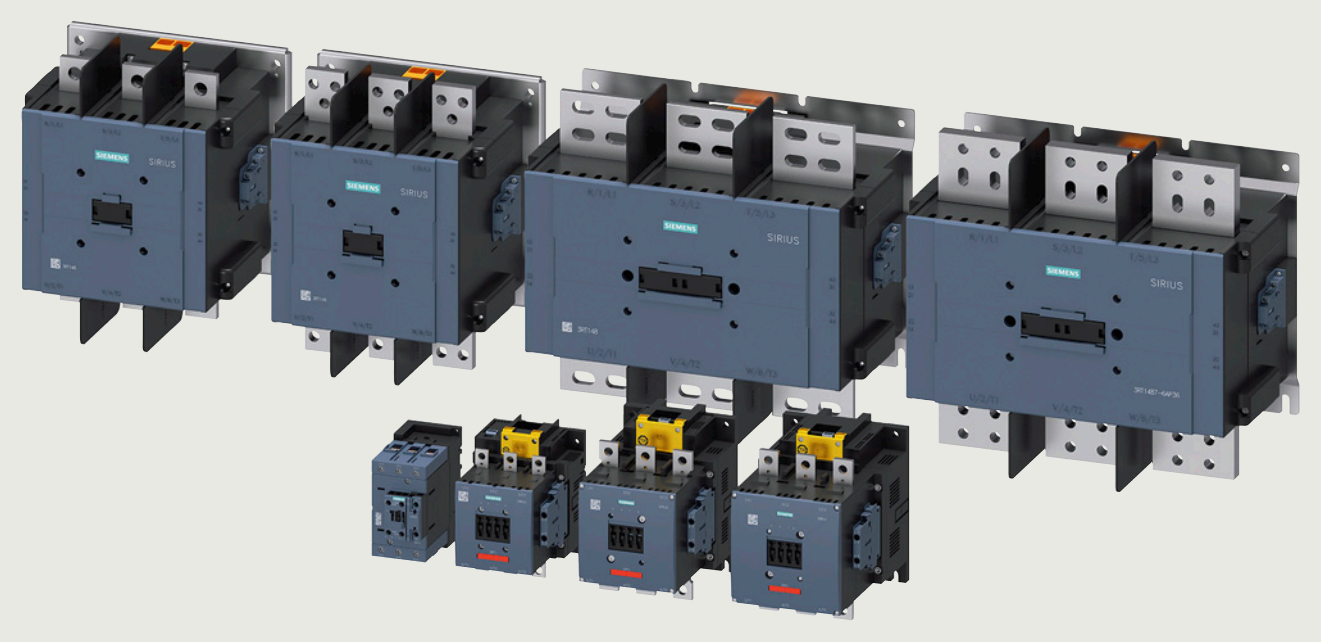
## Overview



3-pole AC-1 contactors
top row: 3RT148 contactors
bottom row: 3RT244, 3RT145 to 3RT147 contactors

***Standards***

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1 (auxiliary switches)

***Contactors with increased tamper protection***

Increased tamper protection is ensured either by using our contactor versions with factory-installed, permanently mounted auxiliary switches which are protected against mechanical external actuation (e.g. 3RT14..-.....-3PA0 contactors), or by using the 3RT1926-4MA10 sealable cover as an accessory, (see page 3/112).

***Protecting connections against short circuit, overload and overvoltage***

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on complete units such as contactors with overload relays or contactors with motor starter protectors as the motor feeder, see Configuration Manual for load feeders.

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet

Short-circuit and overload protection of control supply voltage connections or supply voltage connections

First of all, the relevant standards and regulations for configuring control panels and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state operating mechanisms, switch-on power, holding power).

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control panel tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Short-circuit and overload protection of contactors with a digital input

A typical rated current of 20 mA applies to these inputs according to the PLC input types according to IEC 60947-4-1. The inputs can be protected accordingly.

- Contactors with PLC and F-PLC inputs:
  - For 3RT14..-.S and 3RT14..-.N, marked with +/-
- Supply voltage connections A1 - A2:
  - For 3RT14..-.N, protection based on the load characteristics must be employed.
    For information on power consumption, see the technical product data sheet.
  - For 3RT14..-.S, protection is already integrated.

Short-circuit and overload protection of other connections

The 3RT14..-.P contactor version with remaining lifetime indicator (RLT) also has additional connections H1 - H2 and R1 - R2.

If A1 - A2 is already protected, further protection of H1 - H2 is not required.

For protection specifications for protecting R1 - R2, see the technical product data sheet.

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Protection against overvoltage at the control supply voltage connection

3RT244 contactors supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil and can be ordered separately as accessories, see page 3/97 onwards.

3RT14 contactors are already equipped with coil damping (varistor).

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more information about influencing the time response using damping, see Equipment Manual.

***Connection methods***

Main circuit

- 3RT244 contactors:
  Screw terminals with box terminal;
  direct connection to the connecting bar possible with cable lugs when the box terminal is removed.
- 3RT145 to 3RT147 contactors:
  Screw terminals with connecting bars that the cables can be connected to using either cable lugs or flexible or rigid busbars. Alternatively, box terminals are available as accessories.
- 3RT148 contactors:
  Screw terminals with connecting bars

Auxiliary and control circuits

- 3RT24, 3RT145 to 3RT147:
  Screw or spring-loaded terminals
- 3RT148:
  Screw terminals

***Electromagnetic compatibility (EMC)***

The contactors comply with the conditions for environment A according to IEC 60947-1.

Note:

When the contactors are used in an environment with frequency converters, the configuration notes must be observed, see Equipment Manual.

***Contact reliability of the auxiliary contacts***

If voltages ≤ 110 V and currents ≤ 100 mA are to be switched, the auxiliary contacts of the 3RT contactors or 3RH contactor relays should be used as they guarantee a high level of contact reliability.

These auxiliary contacts are particularly suitable for solid-state circuits with currents ≥ 1 mA at a voltage ≥ 17 V.

***Operating mechanism types***

3RT244 contactors

The contactors are available as versions with conventional AC or DC operating mechanisms or as versions with a wide-range solid-state operating mechanism and a universal actuating voltage (AC or DC operation).

With an operating range from 0.8 to 1.1 x $U_s$, control takes place via the control supply voltage connection A1 - A2.

3RT145 to 3RT147 contactors

The contactors are powered via a supply voltage with an operating range from 0.8 to 1.1 x $U_s$, optionally also controlled depending on the chosen mode of operation. Alternatively, control is via the separate 24 V DC control signal input. Various rated voltage ranges for AC/DC control are available.

The following control and/or operating mechanism versions are available:

- 3RT14..-.A contactors:
  Standard operating mechanism for AC and DC operation (power consumption reduced from closing to closed)
- Solid-state operating mechanisms:
  Overvoltage damping of the operating mechanism coil is already integrated in the electronics for contactors with solid-state operating mechanisms.
  The following versions are available:
  - 3RT14..-.N contactors:
    With two operating modes: direct control or via PLC input (24 V DC)
  - 3RT14..-.P contactors:
    Control via PLC input (24 V DC) only, but with additional remaining lifetime indicator (RLT)
  - 3RT14..-.S contactors:
    Control via fail-safe PLC input (24 V DC) only, for simplification of safety applications

3RT148 contactors

The contactors are equipped with a solid-state operating mechanism for AC/DC control; coil damping is integrated. The operating range is 0.85 to 1.1 x $U_s$.

***Replacing solenoid coils, operating mechanisms or spare contacts***

3RT244 contactors

Solenoid coil or spare contact replacement is possible.

3RT145 to 3RT147 contactors

The operating mechanisms for 3RT14..-.A/-.N/-.P contactors are removable and can be replaced simply by unlocking and pulling them out. The spare contacts can also be replaced.

NOTICE:
Removal or changing of the operating mechanism is not permitted for 3RT14..-.S contactors with fail-safe control.

3RT148 contactors

The operating mechanisms are removable and can be replaced simply by unlocking and pulling them out.

***Fitting auxiliary contacts and mounting additional auxiliary switches***

Features in delivery condition

- 3RT244 contactors:
  Two auxiliary contacts (1 NO + 1 NC) are integrated in the basic unit.
- 3RT14 contactors:
  These contactors are supplied with two laterally mounted auxiliary switches with two contacts each (2 NO + 2 NC).

Expansion possibilities

All basic units can be expanded using auxiliary switches; the permissible configuration must be observed.

For detailed information about the fitting of auxiliary switches for 3RT244 contactors, see pages 3/81 to 3/86.

***Accessories and spare parts***

- 3RT244 and 3RT145 to 3RT147 contactors, see Basic units, page 3/69 onwards
- 3RT148 contactors, see page 4/19 onwards

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***Connection of contactors to fail-safe control modules***

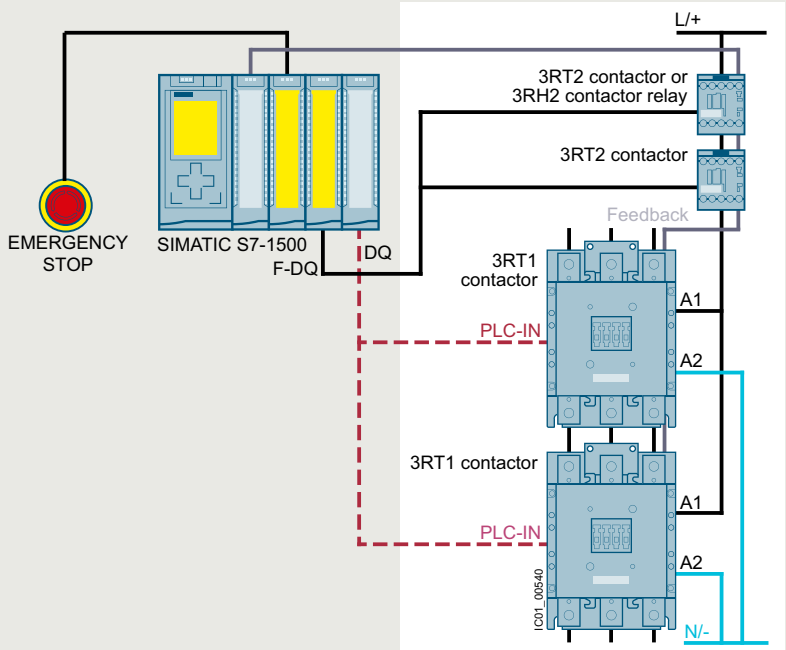
While contactors with smaller power ratings can be connected directly to the outputs of fail-safe controllers, implementing safety-related applications with standard contactors with higher power is much more complicated and elaborate because of the necessary coupling links.

Due to their fail-safe control input, the special versions from size S6 to S12 (3RT14..-.S) provide a much simpler way of doing this.

More information, see

- Safety technology, page 11/1 onwards
- Guide of use for contactors in safety applications

Example for SIL 2 and SIL 3/PL e application – previously:

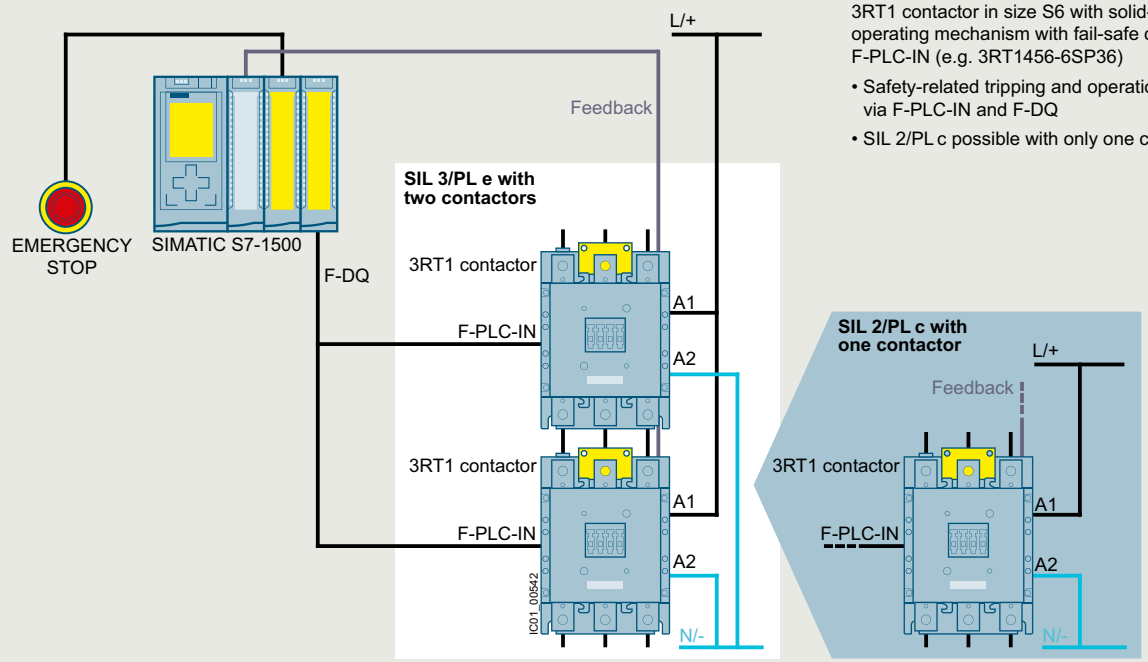



3RT1 contactor in size S6 with standard or solid-state operating mechanism with PLC-IN

- Safety-related tripping only possible via coupling links and F-DQ
- Standard operating mechanism: operational switching via coupling links and F-DQ
- Solid-state operating mechanism: operational switching with PLC-IN and DQ

Application with safety-related disconnection with standard contactors using the example of a 3RT145 contactor

Example for SIL 3/PL e (left-hand side) or SIL 2/PL c (right-hand side) application – new:




3RT1 contactor in size S6 with solid-state operating mechanism with fail-safe control input F-PLC-IN (e.g. 3RT1456-6SP36)

- Safety-related tripping and operational switching via F-PLC-IN and F-DQ
- SIL 2/PL c possible with only one contactor

Application with safety-related disconnection with contactors with fail-safe control using the example of a 3RT145 contactor

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## SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

***Overview graphics with mountable accessories***

- 3RT244 contactors, see page 3/11
- 3RT145 to 3RT147 contactors, see page 3/12 onwards
- 3RT148 contactors, see following graphic

1 3RT1481 to 3RT1487 contactors
(3RT1487 contactor is shown)

**Can be mounted onto side of contactor**
2 3RH1981-1JA11 second auxiliary switch

3RT1481 to 3RT1487 contactors with mountable accessories

### Application

The 3RT.4 contactors can be used for the following applications:

- For switching weak or non-inductive loads (AC-1)
- Disconnecting loads or power generation plants from the grid (e.g. wind turbines or photovoltaic systems)
- Disconnecting frequency converters from the grid

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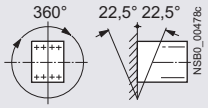
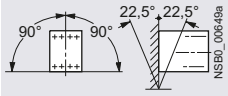
## Technical specifications

**More information**

Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/24229/td
For FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/24229/faq

Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/24229/man
Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687

| Type | | 3RT2446, 3RT2448 | 3RT1456 | 3RT1466 | 3RT1467 | 3RT1476 |
|---|---|---|---|---|---|---|
| Size | | S3 | S6 | S10 | | S12 |
| **General data** | | | | | | |
| **Dimensions (W x H x D)** | | | | | | |
| • Basic units<br>- Screw/spring-loaded terminals | mm | 70 x 140 x 152 | 120 x 172 x 170 | 145 x 210 x 202 | | 160 x 214 x 225 |
| • Basic unit with mounted auxiliary switch<br>- Screw terminals | mm | 70 x 140 x 196 | 120 x 172 x 217 | 145 x 210 x 251 | | 160 x 214 x 271 |
| - Spring-loaded terminals | mm | 70 x 140 x 200 | -- | | | |
| • Basic unit with mounted function module or solid-state time-delayed auxiliary switch<br>- Screw/spring-loaded terminals | mm | 70 x 140 x 226 | -- | | | |
| **Permissible mounting position**<br>The contactors are designed for operation on a vertical mounting surface. | |  |  | | | |
| Upright mounting position | | <br>Special version required | -- | | | |
| **Mechanical endurance** | | | | | | |
| • Basic units and basic units with mounted auxiliary switch | Operating cycles | 10 million | | | | |
| • Basic units with solid-state compatible auxiliary switch | Operating cycles | 5 million | -- | | | |
| **Electrical endurance for utilization category AC-1, at $U_e$ = 400 V** | Operating cycles | 0.5 million | | | 0.35 million | 0.5 million |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 1 000 | | | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | 8 | | | |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | V | 690 | | | | |
| **Mirror contacts** according to IEC 60947-4-1, Annex F<br>A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact. | | | | | | |
| • Integrated auxiliary switches | | Yes | -- | | | |
| • Removable auxiliary switches | | -- | Yes | | | |
| **Permissible ambient temperature** | | | | | | |
| • During operation | °C | -25 ... +60 | | | | |
| • During storage | °C | -55 ... +80 | | | | |
| **Short-circuit protection** | | | | | | |
| **Main circuit** | | | | | | |
| • Version of the fuse link required for short-circuit protection of the main circuit | | | | | | |
| - For type of coordination 1 | | gG: 250 A (690 V, 100 kA) | gG: 355 A (690 V, 100 kA) | gG: 500 A (690 V, 100 kA) | | gG: 800 A (690 V, 50 kA) |
| - For type of coordination 2 | | gG: 250 A (690 V, 100 kA) | gG: 350 A (690 V, 100 kA) | gG: 500 A (690 V, 100 kA) | | gG: 710 A (690 V, 100 kA) |
| **Auxiliary circuit** | | | | | | |
| • Version of the fuse link required for short-circuit protection of the auxiliary switch | A | Fuse gG: 10 | | | | |
| • Version of the miniature circuit breaker required for short-circuit protection of the auxiliary switch | A | On request | | | | |
| Short-circuit protection for contactors with overload relays | | See Configuration Manual for load feeders | | | | |
| Short-circuit protection for fuseless load feeders | | See<br>• 3RA2 load feeders, page 8/5 onwards<br>• Configuration Manual for load feeders | | | | |

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## SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

| Type | | | 3RT2446, 3RT2448 -.A | 3RT2446, 3RT2448 -.N | 3RT1456 -.A | 3RT1456 -.N/-.P/-.S | 3RT1466, 3RT1467 -.A | 3RT1466, 3RT1467 -.N/-.P/-.S | 3RT1476 -.A | 3RT1476 -.N/-.P/-.S |
|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | S3 | | S6 | | S10 | | S12 | |
| **Control** | | | | | | | | | | |
| **Solenoid coil operating range** (AC/DC) | | | 0.8 ... 1.1 x $U_s$ | 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$ | | | | | | |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | | | | | | |
| • AC operation, 50 Hz, standard version | Closing | VA | 296 | -- | | | | | | |
| | P.f. $\varphi$ | | 0.61 | -- | | | | | | |
| | Closed | VA | 19 | -- | | | | | | |
| | P.f. $\varphi$ | | 0.38 | -- | | | | | | |
| • AC operation, 50/60 Hz, standard version | Closing | VA | 348/296 | -- | | | | | | |
| | P.f. $\varphi$ | | 0.62/0.55 | -- | | | | | | |
| | Closed | VA | 25/18 | -- | | | | | | |
| | P.f. $\varphi$ | | 0.35/0.41 | -- | | | | | | |
| • AC operation, 50/60 Hz, for USA/Canada | Closing | VA | 326/326 | -- | | | | | | |
| | P.f. $\varphi$ | | 0.62/0.55 | -- | | | | | | |
| | Closed | VA | 22/22 | -- | | | | | | |
| | P.f. $\varphi$ | | 0.38/0.4 | -- | | | | | | |
| • AC/DC operation | Closing for AC operation | VA | -- | 163 | 300 | 280 | 590 | 530 | 830 | 750 |
| | P.f. $\varphi$ | | -- | | 0.9 | 0.8 | 0.9 | 0.8 | 0.9 | 0.8 |
| | Closed for AC operation | VA | -- | 3.1 | 5.8 | 4.8 | 6.7 | 8.5 | 9.2 | 9 |
| | P.f. $\varphi$ | | -- | | 0.8 | 0.6 | 0.9 | 0.4 | 0.9 | 0.4 |
| | Closing for DC operation | W | -- | 76 | 360 | 320 | 650 | 580 | 920 | 800 |
| | Closed for DC operation | W | -- | 1.8 | 5.2 | 2.8 | 7.4 | 3.4 | 10 | 3.6 |
| **Type of PLC control input according to IEC 60947-1** | | | | | | | | | | |
| • Solid-state operating mechanism | 3RT14..-.N/-.P | | -- | | Type 2 | | | | | |
| | 3RT14..-.S | | -- | | Type 1 | | | | | |
| • Rated voltage | | V DC | -- | | 24 | | | | | |
| • Operating range | | V DC | -- | | 17 ... 30 | | | | | |
| • Power consumption | | mA | -- | | ≤ 30 | | | | | |
| • Recovery time after mains failure, typical (applicable only for fail-safe version 3RT14..-.S) | | s | -- | | 2 | | | | | |

| Type | | | 3RT2446 | 3RT2448 | 3RT1456 | 3RT1466 | 3RT1467 | 3RT1476 |
|---|---|---|---|---|---|---|---|---|
| Size | | | S3 | | S6 | S10 | | S12 |
| **Rated data of the main contacts** | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | |
| **Utilization category AC-1** | | | | | | | | |
| • Rated operational currents $I_e$ | At 40 °C up to 690 V | A | 140 | 160 | 275 | 400 | 500 | 690 |
| | At 60 °C up to 690 V | A | 130 | 140 | 250 | 380 | 450 | Standard operating mechanism: 650, solid-state operating mechanism: 600 |
| | At 40 °C up to 1 000 V | A | 60 | 80 | -- | | | |
| | At 60 °C up to 1 000 V | A | 60 | 80 | -- | | | |
| • Minimum cross-section in the main circuit at maximum AC-1 rated value | | $mm^2$ | 50 | 70 | 140 | 240 | 300 | 480 |
| **Power loss per main conducting path** | At $I_e$/AC-1/40 °C | W | 9.8 | 12.8 | 28.8 | 35.2 | 35.2 | 61.9 |

| Type | | 3RT2446, 3RT2448 |
|---|---|---|
| Size | | S3 |
| **Conductor cross-sections** | | |
| **Main conductors** (1 or 2 conductors can be connected) | | Screw terminals |
| • Solid | $mm^2$ | 2 x (2.5 ... 16)[1] |
| • Stranded | $mm^2$ | 2 x (6 ... 16)[1]; 2 x (10 ... 50)[1]; 1 x (10 ... 70)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (2.5 ...35)[1]; 1 x (2.5 ... 50)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (10 ... 1/0)[1]; 1 x (10 ... 2/0)[1] |
| • Terminal screws | | Hexagon socket, size 4 |
| - Tightening torque | Nm | 4.5 ... 6 (40 ... 53 lb.in) |
| **Auxiliary conductors and control conductors** (1 or 2 conductors can be connected) | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1]; 2 x (18 ... 14)[1] |
| • Terminal screws | | M3 (for Pozidriv size 2; ∅ 5 ... 6 mm) |
| - Tightening torque | Nm | 0.8 ... 1.2 (7 ... 10.3 lb.in) |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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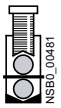
**SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A**



| Type | | 3RT1456 | | 3RT1466, 3RT1467 | 3RT1476 |
|---|---|---|---|---|---|
| Size | | S6 | | S10 | S12 |
| **Conductor cross-sections** | | | | | |
| **Main conductors** (1 or 2 conductors can be connected) | | Screw terminals | | | |
| With mounted box terminals | Type | 3RT1955-4G | 3RT1956-4G | 3RT1966-4G | |
| Terminal screws | | M10 (hexagon socket, A/F 4) | M10 (hexagon socket, A/F 4) | M12 (hexagon socket, A/F 5) | |
| • Tightening torque | Nm<br>lb.in | 10 ... 12<br>90 ... 110 | 10 ... 12<br>90 ... 110 | 20 ... 22<br>180 ... 195 | |
| Front clamping point connected | | | | | |
| | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 16 ... 70 | 16 ... 120 | 70 ... 240 | |
| • Finely stranded without end sleeve | $mm^2$ | 16 ... 70 | 16 ... 120 | 70 ... 240 | |
| • Stranded | $mm^2$ | 16 ... 70 | 16 ... 120 | 95 ... 300 | |
| • AWG cables, solid or stranded | AWG | 6 ... 2/0 | 6 ... 250 kcmil | 3/0 ... 600 kcmil | |
| • Ribbon cable conductors (Number x Width x Thickness) | mm | Min. 3 x 9 x 0.8, max. 6 x 15.5 x 0.8 | Min. 3 x 9 x 0.8, max. 10 x 15.5 x 0.8 | Min. 6 x 9 x 0.8, max. 20 x 24 x 0.5 | |
| Rear clamping point connected | | | | | |
| | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 16 ... 70 | 16 ... 120 | 120 ... 185 | |
| • Finely stranded without end sleeve | $mm^2$ | 16 ... 70 | 16 ... 120 | 120 ... 185 | |
| • Stranded | $mm^2$ | 16 ... 70 | 16 ... 120 | 120 ... 240 | |
| • AWG cables, solid or stranded | AWG | 6 ... 2/0 | 6 ... 250 kcmil | 250 ... 500 kcmil | |
| • Ribbon cable conductors (Number x Width x Thickness) | mm | Min. 3 x 9 x 0.8, max. 6 x 15.5 x 0.8 | Min. 3 x 9 x 0.8, max. 10 x 15.5 x 0.8 | Min. 6 x 9 x 0.8, max. 20 x 24 x 0.5 | |
| Both clamping points connected (minimum cross-section 16 $mm^2$) | | | | | |
|  | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | Max. 1 x 50, 1 x 70 | Max. 1 x 95, 1 x 120 | Min. 2 x 50, max. 2 x 185 | |
| • Finely stranded without end sleeve | $mm^2$ | Max. 1 x 50, 1 x 70 | Max. 1 x 95, 1 x 120 | Min. 2 x 50, max. 2 x 185 | |
| • Stranded | $mm^2$ | Max. 1 x 50, 1 x 70 | Max. 1 x 95, 1 x 120 | Min. 2 x 70, max. 2 x 240 | |
| • AWG cables, solid or stranded | AWG | Max. 2 x 1/0 | Max. 2 x 3/0 | Min. 2 x 2/0, max. 2 x 500 kcmil | |
| • Ribbon cable conductors (Number x Width x Thickness) | mm | Max. 2 x (6 x 15.5 x 0.8) | Max. 2 x (10 x 15.5 x 0.8) | Max. 2 x (20 x 24 x 0.5) | |
| Busbar connections | | | | | |
| • Connecting bar (max. width) | mm | 17 | | 25 | |
| - Bore diameter | mm | 9 | | 11 | |
| Cable lug connection | | 1) | | 2) | |
| • Finely stranded with cable lug | $mm^2$ | 16 ... 95 | | 50 ... 240 | |
| • Stranded with cable lug | $mm^2$ | 25 ... 120 | | 70 ... 240 | |
| • AWG cables, solid or stranded | AWG | 4 ... 250 kcmil | | 2/0 ... 500 kcmil | |
| • Terminal screws | | M8 x 25 (A/F 13) | | M10 x 30 (A/F 17) | |
| - Tightening torque | Nm<br>lb.in | 10 ... 14<br>90 ... 124 | | 14 ... 24<br>124 ... 210 | |
| **Auxiliary conductors** (1 or 2 conductors can be connected) | | | | | |
| • Solid | $mm^2$ | 2 x (0.5 ... 1.5)[3], 2 x (0.75 ... 2.5)[3] according to IEC 60947; max. 2 x (0.75 ... 4)[3] | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[3]; 2 x (0.75 ... 2.5)[3] | | | |
| • AWG cables, solid or stranded | AWG | 2 x (18 ... 14) | | | |
| • Terminal screws | | M3 (Pozidriv size 2) | | | |
| - Tightening torque | Nm<br>lb.in | 0.8 ... 1.2<br>7 ... 10.3 | | | |
| **Auxiliary conductors**[4] (1 or 2 conductors can be connected) | | Spring-loaded terminals | | | |
| • Operating devices | | 3.0 x 0.5; 3.5 x 0.5 | | | |
| • Solid | $mm^2$ | 2 x (0.25 ... 2.5) | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.25 ... 1.5) | | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.25 ... 2.5) | | | |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 14) | | | |

1) 3RT1456: When connecting cable lugs according to DIN 46235, use the 3RT1956-4EA1 terminal cover for conductor cross-sections from 95 $mm^2$ to maintain the phase clearance, see page 3/112.

2) 3RT1466, 3RT1467 and 3RT1476: When connecting cable lugs according to DIN 46234 for conductor cross-sections larger than 240 $mm^2$ and according to DIN 46235 for conductor cross-sections larger than 185 $mm^2$, the 3RT1966-4EA1 terminal cover is required to maintain the phase clearance, see page 3/112.

3) If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

4) Max. external diameter of the conductor insulation: 3.6 mm. On spring-loaded terminals with conductor cross-sections ≤ 1 $mm^2$ an insulation stop is recommended, see page 3/115.

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## SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

| Type | | 3RT1481-6A.36 | 3RT1482-6A.36 | 3RT1483-6AP36 | 3RT1485-6AP36 | 3RT1486-6AP36 | 3RT1487-6AP36 |
|---|---|---|---|---|---|---|---|
| **General data** | | | | | | | |
| **Dimensions** | | | | | | | |
| • Width | mm | 285 | | | 431 | | |
| • Height | mm | 352 | | | 403 | | |
| • Depth | mm | 250 | | | 246 | | |
| **Mounting position** | | For vertical mounting surface can be rotated ± 30°, for vertical mounting surface can be tilted ± 30° forward or backward | | | | | |
| **Installation altitude at height above sea level, maximum** | m | 2 000 | | | | | |
| **Insulation voltage at pollution degree 3** | | | | | | | |
| • Of the main circuit | V | 1 000 | | | | | |
| • Of the auxiliary circuit | V | 600 | | | | | |
| **Impulse withstand voltage** | | | | | | | |
| • Of the main circuit | kV | 8 | | | | | |
| • Of the auxiliary circuit | kV | 6 | | | | | |
| **Product function, mirror contact according to IEC 60947-4-1** | | Yes | | | | | |
| **Ambient temperature** | | | | | | | |
| • During operation | °C | -25 ... +55 | | | | | |
| • During storage | °C | -40 ... +80 | | | | | |
| **Short-circuit protection** | | | | | | | |
| **Version of the fuse link required** | | | | | | | |
| • For short-circuit protection of the main circuit for type of coordination 2 | | aR: 1 000 A (1 000 V, 30 kA) | aR: 1 100 A (1 000 V, 42 kA) | aR: 1 400 A (1 000 V, 42 kA) | aR: 2 200 A (1 000 V, 42 kA) | aR: 2 500 A (1 000 V, 42 kA) | aR: 2 800 A (1 000 V, 50 kA) |
| • For short-circuit protection of the auxiliary switch | | gG: 16 A (600 V, 1 kA) | | | | | |

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**SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A**

| Type | | 3RT1481-6AF36 | 6AP36 | 3RT1482-6AF36 | 6AP36 | 3RT1483-6AP36 | 3RT1485-6AP36 | 3RT1486-6AP36 | 3RT1487-6AP36 |
|---|---|---|---|---|---|---|---|---|---|
| **Control circuit/control** | | | | | | | | | |
| **Operating range factor of the control supply voltage, rated value of the solenoid coil** | | | | | | | | | |
| • At AC at 50 Hz | | 0.85 ... 1.1 | | | | | | | |
| • At AC at 60 Hz | | 0.85 ... 1.1 | | | | | | | |
| • At DC | | 0.85 ... 1.1 | | | | | | | |
| **Solenoid coil closing power for DC** | W | 1 400 | 2 000 | 1 400 | 2 000 | 2 700 | 2 800 | | |
| **Closing apparent power of the solenoid coil for AC** | | | | | | | | | |
| • At 50 Hz | VA | 1 000 | | | | 1 700 | 1 800 | | |
| • At 60 Hz | VA | 1 000 | | | | 1 700 | 1 800 | | |
| **Solenoid coil closed for DC** | W | 6 | 7 | 6 | 7 | 8 | 11 | | |
| **Closed apparent power of the solenoid coil for AC** | | | | | | | | | |
| • At 50 Hz | VA | 18 | 23 | 18 | 23 | 20 | 33 | | |
| • At 60 Hz | VA | 18 | 23 | 18 | 23 | 20 | 33 | | |
| **Main circuit** | | | | | | | | | |
| **Operational current at AC-1** | | | | | | | | | |
| • Up to 690 V | | | | | | | | | |
| - At an ambient temperature of 40 °C | A | 900 | | 1 050 | | 1 260 | 1 700 | 2 100 | 2 650 |
| - At an ambient temperature of 55 °C | A | 900 | | 1 050 | | 1 260 | 1 700 | 2 100 | 2 650 |
| • Up to 1000 V | | | | | | | | | |
| - At an ambient temperature of 40 °C | A | 900 | | 1 050 | | 1 260 | 1 700 | 2 100 | 2 650 |
| - At an ambient temperature of 55 °C | A | 900 | | 1 050 | | 1 260 | 1 700 | 2 100 | 2 650 |
| **Type of electrical connection for the main circuit** | | Busbar connections | | | | | | | |
| **Minimum cross-section in the main circuit for max. AC-1 rated value** | $mm^2$ | 600 | | 800 | | 1 000 | 1 500 | 2 000 | 3 000 |

| Type | | 3RT1481-6A.36, 3RT1482-6A.36 | 3RT1483-6AP36 | 3RT1485-6AP36, 3RT1486-6AP36 | 3RT1487-6AP36 |
|---|---|---|---|---|---|
| **Conductor cross-sections** | | | | | |
| ***Control circuit/control*** | | | | | |
| **Type of connectable conductor cross-sections for auxiliary contacts** | | | | | |
| • Solid | | 2x (1 ... 2.5 $mm^2$) | | | |
| • Solid or stranded | | 2x (1 ... 2.5 $mm^2$) | | | |
| • Finely stranded with end sleeve | | 2x (1 ... 2.5 $mm^2$) | | | |
| ***Main circuit*** | | | | | |
| **Width of connecting bar** | mm | 40 | 50 | 103 | |
| **Thickness of connecting bar** | mm | 10 | 13 | 10 | 20 |
| **Diameter of hole** | mm | 17 | 13 | 15 | 13 |

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## SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

### Selection and ordering data

***Size S3: AC operation or AC/DC operation***

- Coil circuits (varistors, diodes, etc.) retrofittable
- Auxiliary switches can be retrofitted
- Main and control conductors: Screw terminals

3RT244.-1...0

| Size | Rated data AC-1, $t_u$: 40 °C Operational current $I_e$ up to **690 V** **A** | Rated data AC-1, $t_u$: 60 °C Operational current $I_e$ up to 690 V A | Auxiliary contacts Ident. No. | Auxiliary contacts Version NO | Auxiliary contacts Version NC | Rated control supply voltage $U_s$ 50 Hz AC V | Rated control supply voltage $U_s$ 50 Hz AC or DC V | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | | | | |
| ***AC operation*** | | | | | | | | | | | | |
| **S3** | **140** | 130 | **11** | 1 | 1 | 24 | -- | **3RT2446-1AB00** | | 1 | 1 unit | 41B |
| | | | | | | 110 | -- | **3RT2446-1AF00** | | 1 | 1 unit | 41B |
| | | | | | | 230 | -- | **3RT2446-1AP00** | | 1 | 1 unit | 41B |
| | **160** | 140 | **11** | 1 | 1 | 24 | -- | **3RT2448-1AB00** | | 1 | 1 unit | 41B |
| | | | | | | 110 | -- | **3RT2448-1AF00** | | 1 | 1 unit | 41B |
| | | | | | | 230 | -- | **3RT2448-1AP00** | | 1 | 1 unit | 41B |
| ***AC/DC operation*** | | | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | | | |
| **S3** | **140** | 130 | **11** | 1 | 1 | -- | 20 ... 33 | **3RT2446-1NB30** | | 1 | 1 unit | 41B |
| | | | | | | -- | 83 ... 155 | **3RT2446-1NF30** | | 1 | 1 unit | 41B |
| | | | | | | -- | 175 ... 280 | **3RT2446-1NP30** | | 1 | 1 unit | 41B |
| | **160** | 140 | **11** | 1 | 1 | -- | 20 ... 33 | **3RT2448-1NB30** | | 1 | 1 unit | 41B |
| | | | | | | -- | 83 ... 155 | **3RT2448-1NF30** | | 1 | 1 unit | 41B |
| | | | | | | -- | 175 ... 280 | **3RT2448-1NP30** | | 1 | 1 unit | 41B |

Other voltages according to page 4/52 on request.
Accessories and spare parts, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

***Sizes S6 to S12: AC/DC operation***

- 3RT14..-.A standard operating mechanism
- Solid-state operating mechanism
  - 3RT14..-.N with 24 V DC control signal input
  - 3RT14..-.P with 24 V DC control signal input and remaining lifetime indicator (RLT)
- For screw fixing
- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections; a connection kit with screws, spring washers and nuts is enclosed.

3RT1456-6A.36

3RT1466-6A.36

3RT1476-6A.36

3RT1476-6N.36

3RT1476-6P.35

| Size | Rated data AC-1, $t_u$: 40 °C Operational current $I_e$ up to **690 V** **A** | Rated data AC-1, $t_u$: 60 °C Operational current $I_e$ up to 690 V A | Auxiliary contacts, lateral NO | Auxiliary contacts, lateral NC | Rated control supply voltage $U_s$ Version 50/60 Hz AC or DC V | **Screw terminals** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Standard operating mechanism for AC and DC operation (power consumption reduced from closing to closed)** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated at the factory)** | | | | | | | | | | |
| **S6** | **275** | 250 | 2 | 2 | 110 ... 127 | **3RT1456-6AF36** | | 1 | 1 unit | 41B |
| | | | | | 220 ... 240 | **3RT1456-6AP36** | | 1 | 1 unit | 41B |
| **S10** | **400** | 380 | 2 | 2 | 110 ... 127 | **3RT1466-6AF36** | | 1 | 1 unit | 41B |
| | | | | | 220 ... 240 | **3RT1466-6AP36** | | 1 | 1 unit | 41B |
| | **500** | 450 | 2 | 2 | 110 ... 127 | **3RT1467-6AF36** | | 1 | 1 unit | 41B |
| | | | | | 220 ... 240 | **3RT1467-6AP36** | | 1 | 1 unit | 41B |
| **S12** | **690** | 650 | 2 | 2 | 110 ... 127 | **3RT1476-6AF36** | | 1 | 1 unit | 41B |
| | | | | | 220 ... 240 | **3RT1476-6AP36** | | 1 | 1 unit | 41B |
| **Solid-state operating mechanism** | | | | | | | | | | |
| ***With 24 V DC control signal input e.g. for control by PLC*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| **S6** | **275** | 250 | 2 | 2 | 96 ... 127 | **3RT1456-6NF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1456-6NP36** | | 1 | 1 unit | 41B |
| **S10** | **400** | 380 | 2 | 2 | 96 ... 127 | **3RT1466-6NF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1466-6NP36** | | 1 | 1 unit | 41B |
| | **500** | 450 | 2 | 2 | 96 ... 127 | **3RT1467-6NF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1467-6NP36** | | 1 | 1 unit | 41B |
| **S12** | **690** | 650 | 2 | 2 | 96 ... 127 | **3RT1476-6NF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1476-6NP36** | | 1 | 1 unit | 41B |
| ***With 24 V DC control signal input · with remaining lifetime indicator (RLT) e.g. for control by PLC*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| **S6** | **275** | 250 | 1 | 1 | 96 ... 127 | **3RT1456-6PF35** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1456-6PP35** | | 1 | 1 unit | 41B |
| **S10** | **400** | 380 | 1 | 1 | 96 ... 127 | **3RT1466-6PF35** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1466-6PP35** | | 1 | 1 unit | 41B |
| | **500** | 450 | 1 | 1 | 96 ... 127 | **3RT1467-6PF35** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1467-6PP35** | | 1 | 1 unit | 41B |
| **S12** | **690** | 650 | 1 | 1 | 96 ... 127 | **3RT1476-6PF35** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1476-6PP35** | | 1 | 1 unit | 41B |

Other voltages according to page 4/53 on request.
Accessories and spare parts, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

### *Sizes S6 to S12: AC/DC operation*

- Certified and fail-safe 24 V DC control input with max. 20 mA, e.g. for control via the fail-safe output module of a controller (F-PLC) or safety relay
- Achievable Safety Integrity Level (SIL) according to IEC 62061 and Performance Level (PL) according to ISO 13849-1 with corresponding fault diagnostics:
  - With one contactor: SIL 2/PL c
  - With two contactors in series: SIL 3/PL e
  - Fail-safe applications can be implemented using this contactor.
- Version with removable lateral auxiliary switches or permanently mounted auxiliary switches
- For screw fixing
- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections; a connection kit with screws, spring washers and nuts is enclosed.

More information, see
- Safety technology, page 11/1 onwards
- Guide of use for contactors in safety applications

3RT1456-6S.36

3RT1466-6S.36

3RT1476-6S.36

3RT1456-6S.36-3PA0

3RT1476-6S.36-3PA0

| Size | Rated data according to IEC 60947-4-1 AC-1, $t_u$: 40 °C Operational current $I_e$ up to **690 V** **A** | 60 °C 690 V A | Auxiliary contacts, lateral Version NO | NC | Rated control supply voltage $U_s$ 50/60 Hz AC or DC V | **Screw terminals** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Solid-state operating mechanism** | | | | | | | | | | |
| ***With two removable laterally mounted auxiliary switches*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| **S6** | **275** | 250 | 2 | 2 | 96 ... 127 | **3RT1456-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1456-6SP36** | | 1 | 1 unit | 41B |
| **S10** | **400** | 380 | 2 | 2 | 96 ... 127 | **3RT1466-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1466-6SP36** | | 1 | 1 unit | 41B |
| | **500** | 450 | 2 | 2 | 96 ... 127 | **3RT1467-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1467-6SP36** | | 1 | 1 unit | 41B |
| **S12** | **690** | 650 | 2 | 2 | 96 ... 127 | **3RT1476-6SF36** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1476-6SP36** | | 1 | 1 unit | 41B |
| ***With two permanently laterally mounted auxiliary switches*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| **S6** | **275** | 250 | 2 | 2 | 96 ... 127 | **3RT1456-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1456-6SP36-3PA0** | | 1 | 1 unit | 41B |
| **S10** | **400** | 380 | 2 | 2 | 96 ... 127 | **3RT1466-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1466-6SP36-3PA0** | | 1 | 1 unit | 41B |
| | **500** | 450 | 2 | 2 | 96 ... 127 | **3RT1467-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1467-6SP36-3PA0** | | 1 | 1 unit | 41B |
| **S12** | **690** | 650 | 2 | 2 | 96 ... 127 | **3RT1476-6SF36-3PA0** | | 1 | 1 unit | 41B |
| | | | | | 200 ... 277 | **3RT1476-6SP36-3PA0** | | 1 | 1 unit | 41B |

Accessories and spare parts, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

***AC/DC operation*** ≂

- Solid-state operating mechanism
- Version with two laterally mounted auxiliary switches (2 NO + 2 NC each)
- For screw fixing
- Auxiliary and control conductors: Screw terminals
- Main conductors: Busbar connections

3RT1481-6A.36, 3RT1482-6A.36

3RT1483-6AP36

3RT1485-6AP36, 3RT1486-6AP36

3RT1487-6AP36

| Rated data according to IEC 60947-4-1 | Auxiliary contacts, lateral | | Rated control supply voltage $U_s$ | | **Busbar connections** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| AC-1, $t_u$: 40 °C | Version | | 50/60 Hz AC | DC | Article No. | | Price per PU | |
| Operational current $I_e$ up to **1 000 V** | | | | | | | | |
| **A** | NO | NC | V | V | | | | |
| **Solid-state operating mechanism** | | | | | | | | |
| ***With integrated coil circuit*** | | | | | | | | |
| **900** | 2 | 2 | 100 ... 127<br>200 ... 240 | 100 ... 110<br>200 ... 220 | **3RT1481-6AF36**<br>**3RT1481-6AP36** | 1<br>1 | 1 unit<br>1 unit | 41B<br>41B |
| **1 050** | 2 | 2 | 100 ... 127<br>200 ... 240 | 100 ... 110<br>200 ... 220 | **3RT1482-6AF36**<br>**3RT1482-6AP36** | 1<br>1 | 1 unit<br>1 unit | 41B<br>41B |
| **1 260** | 2 | 2 | 100 ... 240 | 100 ... 220 | **3RT1483-6AP36** | 1 | 1 unit | 41B |
| **1 700** | 2 | 2 | 100 ... 240 | 100 ... 220 | **3RT1485-6AP36** | 1 | 1 unit | 41B |
| **2 100** | 2 | 2 | 100 ... 240 | 100 ... 220 | **3RT1486-6AP36** | 1 | 1 unit | 41B |
| **2 650** | 2 | 2 | 100 ... 240 | 100 ... 220 | **3RT1487-6AP36** | 1 | 1 unit | 41B |

Accessories, see next table; spare parts, see page 4/19.

## Accessories

Overview graphics for 3RT148 contactors with mountable accessories, see page 4/10.

**More information**

Manuals, see
https://support.industry.siemens.com/cs/ww/en/ps/24229/man

| For contactors | Auxiliary contacts Version | | | | **Screw terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | | Price per PU | |
| Type | NO | NC | Left | Right | | | | |
| **Second auxiliary switch (1 NO + 1 NC)** | | | | | | | | |
| Lateral mounting on the right and/or the left | | | | | | | | |
| 3RT148. | 1 | 1 | 61 53<br>62 54 | 71 83<br>72 84 | **3RH1981-1JA11** | 1 | 1 unit | 41B |

3RH1981-1JA11

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT.4 contactors for weak or non-inductive loads (AC-1), 3-pole up to 2 650 A

### Spare parts

| For contactors | Auxiliary contacts | | | | Rated control supply voltage $U_s$ | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Version | | | | 50/60 Hz AC | DC | | | | | |
| Type | NO | NC | Left | Right | V | V | | | | | |
| **First auxiliary switch (1 NO + 1 NC)** | | | | | | | | | | | |
| | Lateral mounting on the right and/or the left | | | | | | **Screw terminals** | | | | |
| 3RT148. | 1 | 1 | 21 13 / 22 14 | 31 43 / 32 44 | -- | -- | **3RH1981-1DA11** | | 1 | 1 unit | 41B |
| **Phase barriers** | | | | | | | | | | | |
| (1 set = 4 units) | | | | | | | | | | | |
| 3RT1481 ... 3RT1483 | -- | -- | -- | -- | -- | -- | **3RT1983-4AA1** | | 1 | 1 unit | 41B |
| 3RT1485 ... 3RT1487 | -- | -- | -- | -- | -- | -- | **3RT1987-4AA1** | | 1 | 1 unit | 41B |
| **Withdrawable coils · AC/DC operation** | | | | | | | | | | | |
| 3RT1481, 3RT1482 | -- | -- | -- | -- | 100 ... 127 | 100 ... 110 | **3RT1982-5AF31** | | 1 | 1 unit | 41B |
| | -- | -- | -- | -- | 200 ... 240 | 200 ... 220 | **3RT1982-5AP31** | | 1 | 1 unit | 41B |
| 3RT1483 | -- | -- | -- | -- | 100 ... 240 | 100 ... 220 | **3RT1983-5AP31** | | 1 | 1 unit | 41B |
| 3RT1485 ... 3RT1487 | -- | -- | -- | -- | 100 ... 240 | 100 ... 220 | **3RT1987-5AP31** | | 1 | 1 unit | 41B |

3RH1981-1DA11

3RT1983-4AA1

3RT1987-4AA1

3RT1982-5A.31, 3RT1983-5AP31

3RT1987-5AP31



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

3RT231 to 3RT234 and 3RT135 to 3RT137 contactors, with screw terminals

### *Standards*

IEC 60947-1, IEC 60947-4-1, IEC60947-5-1 (auxiliary switches)

### *Protecting connections against short circuit, overload and overvoltage*

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on complete units such as contactors with overload relays or contactors with motor starter protectors as the motor feeder, see Configuration Manual for load feeders.

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage connections or supply voltage connections

First of all, the relevant standards and regulations for configuring control panels and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state operating mechanisms, switch-on power, holding power).

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control panel tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Protection against overvoltage at the control supply voltage connection

3RT23 contactors supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil and can be ordered separately as accessories, see page 3/97 onwards.

3RT13 contactors are already equipped with coil damping (varistor).

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more information about influencing the time response using damping, see Equipment Manual.

### *Connection methods*

Main circuit

- 3RT231 and 3RT232 contactors:
  Screw terminals or spring-loaded terminals;
  spring-loaded terminals with convenient plug-in design for device connectors
- 3RT233 and 3RT234 contactors:
  Screw terminals with box terminal;
  direct connection to the connecting bar possible with cable lugs for 3RT234 when the box terminal is removed.
- 3RT135 to 3RT137 contactors:
  Screw terminals with connecting bars that the cables can be connected to using either cable lugs or flexible or rigid busbars.
- 3RT136 and 3RT137 contactors:
  These can be fitted with bus connectors offset, see page 4/35.

Auxiliary and control circuits

Screw terminals

### *Electromagnetic compatibility*

The contactors fulfill the requirements for environment category A.

Note:

When the contactors are used in an environment with frequency converters, the configuration notes must be observed, see Equipment Manual.

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***Contact reliability of the auxiliary contacts***

If voltages ≤ 110 V and currents ≤ 100 mA are to be switched, the auxiliary contacts of the 3RT contactors or 3RH contactor relays should be used as they guarantee a high level of contact reliability.

These auxiliary contacts are particularly suitable for solid-state circuits with currents ≥ 1 mA at a voltage ≥ 17 V.

***Motor protection***

3RT23 contactors

For protection against overload, 3RU2 thermal overload relays (see page 7/89 onwards) or 3RB3 electronic overload relays (see page 7/102 onwards) can be mounted on the 3RT23 contactors.

3RT13 contactors

For protection against overload, 3RB2 electronic overload relays (see page 7/114 onwards) can be mounted on the 3RT13 contactors.

***Operating mechanism types***

3RT23 contactors

The contactors are available as versions with conventional AC or DC operating mechanisms or as versions with a wide-range solid-state operating mechanism and a universal actuating voltage (AC or DC operation possible).

Control takes place via the control supply voltage connection A1 - A2 with varying operating ranges (see relevant product data sheet for further details).

3RT13 contactors

The contactors are fitted with a wide-range solid-state operating mechanism that can be controlled with both 50/60 Hz AC and DC.

The operating range of the DC control is 0.8 x $U_{s\,min}$ and 1.1 x $U_{s\,max}$, and for AC operation 0.85 x $U_{s\,min}$ and 1.1 x $U_{s\,max}$.

***Replacing solenoid coils, operating mechanisms or spare contacts***

3RT23 contactors

Solenoid coil replacement is possible. Only the contacts for 3RT233 contactors can be replaced.

3RT13 contactors

It is not possible to change the operating mechanism or contacts.

***Fitting auxiliary contacts and mounting additional auxiliary switches***

Features in the delivery state

- 3RT23 contactors
  - 3RT231 contactor:
    An auxiliary contact is integrated in the basic unit.
  - 3RT232 to 3RT234 contactors:
    The basic units contain two integrated auxiliary contacts (1 NO + 1 NC).
- 3RT13 contactors
  These contactors are supplied with two laterally mounted auxiliary switches.

Expansion possibilities

All basic units can be expanded using auxiliary switches; the permissible configuration must be observed.

For detailed information about the fitting of auxiliary switches for 3RT23 contactors, see pages 3/81 to 3/86.

***Accessories and spare parts***

- 3RT231 to 3RT234 contactors, see page 3/69 onwards
- 3RT135 to 3RT137 contactors, see page 4/35

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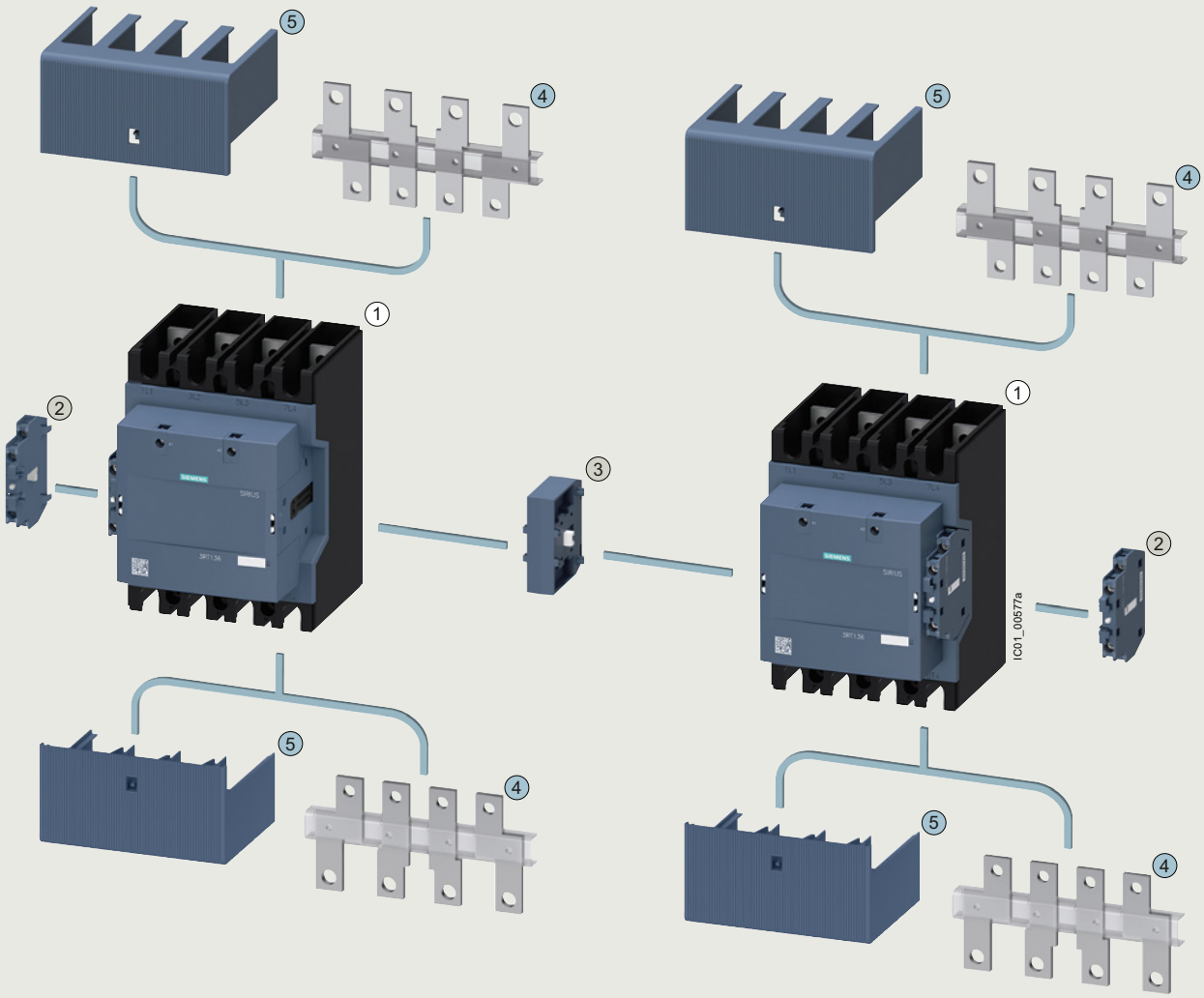
***Overview graphic with mountable accessories***

- 3RT23 contactors, see page 3/8 onwards
- 3RT135 to 3RT137 contactors, see following graphic




(1) 4-pole 3RT13 contactors, sizes S6 to S12
(scope of supply: The contactors are supplied with two laterally mounted auxiliary switch blocks)

(2) 3RH1951-1SA11 second auxiliary switch block, can be laterally mounted on the left or right

(3) 3RA1954-3A mechanical interlock for configuring contactor assemblies:
Two 3RT13 contactors of the same size (S6, S10 and S12) can be interlocked with each other. The laterally mounted auxiliary switches of the contactors must be removed beforehand.
The mechanical interlock cannot be used in conjunction with the bus connectors offset (4).

(4) 3RT19.6-4D bus connectors offsets, can be mounted on the top or bottom (providing no terminal cover (5) is mounted)

(5) 3RT19.6-4EB10 terminal covers, can be mounted on the top or bottom (providing no bus connectors offset (4) is mounted)

◯ Same accessories for sizes S6 to S12
◯ Different accessories depending on size

| | Size | S6 | S10 | | S12 | | |
|---|---|---|---|---|---|---|---|
| (1) | Contactor | 3RT1355 ($I_e$ = 200 A) | 3RT1363 ($I_e$ = 275 A) | 3RT1364 ($I_e$ = 350 A) | 3RT1373 ($I_e$ = 400 A) | 3RT1374 ($I_e$ = 500 A) | 3RT1375 ($I_e$ = 525 A) |
| (2) | Second auxiliary switch block | 3RH1951-1SA11 | | | | | |
| (3) | Mechanical interlock | 3RA1954-3A | | | | | |
| (4) | Bus connectors offset | -- | 3RT1966-4D (from $I$ > 275 A) | | 3RT1976-4D (from $I$ > 450 A) | | |
| (5) | Terminal cover | 3RT1956-4EB10 | 3RT1966-4EB10 | | 3RT1976-4EB10 | | |

3RT135 to 3RT137 contactors with mountable accessories

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**SIRIUS 3RT.3 contactors, 4-pole, up to 525 A**



## Application

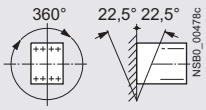
The 3RT.3 contactors can be used for the following applications:

- 4-pole switching of weak or non-inductive loads (AC-1)
- Disconnecting loads or power generation plants from the grid
- For system transfers

We additionally offer special versions of the 3RT23 contactors for switching motor-driven loads (AC-3).

## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16165/td<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16165/faq | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16165/man |

| Type | | 3RT2316, 3RT2317 | 3RT2325 to 3RT2327 | 3RT2336, 3RT2337 | 3RT2344, 3RT2346, 3RT2348 |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| **General data** | | | | | |
| **Dimensions (W x H x D)** | | | (The values in brackets apply for DC operation) | | |
| AC or DC operation | | | | | |
| • Basic units | | | | | |
| - Screw terminals | mm | 45 x 58 x 73 | 60 x 85 x 97 (107) | 75 x 114 x 130 | 96 x 140 x 152 |
| - Spring-loaded terminals | mm | 45 x 70 x 73 | 61 x 102 x 97 (107) | -- | -- |
| • Basic unit with mounted auxiliary switch | | | | | |
| - Screw terminals | mm | 45 x 58 x 117 | 60 x 85 x 141 (151) | 75 x 114 x 174 | 96 x 140 x 196 |
| - Spring-loaded terminals | mm | 45 x 70 x 121 | 61 x 102 x 145 (155) | -- | -- |
| • Basic unit with mounted function module or solid-state time-delayed auxiliary switch | | | | | |
| - Screw terminals | mm | 45 x 58 x 147 | 60 x 85 x 171 (181) | 75 x 114 x 204 | 96 x 140 x 226 |
| - Spring-loaded terminals | mm | 45 x 70 x 147 | 61 x 102 x 171 (181) | -- | -- |
| **Permissible mounting position** | | | | | |
| The contactors are designed for operation on a vertical mounting surface. | |   | | | |
| Upright mounting position | | Special version required | | | |
| **Mechanical endurance** | Operating cycles | 30 million | 10 million | | |
| **Electrical endurance at $I_e$/AC-1** | Operating cycles | Approx. 0.5 million | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 690 | | | |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | V | 400 | | | 690 |
| **Permissible ambient temperature** | | | | | |
| • During operation | °C | -25 ... +60 | | | |
| • During storage | °C | -55 ... +80 | | | |

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| Type | 3RT2316, 3RT2317 | 3RT2325, 3RT2326 | 3RT2326-1...0-4AA0 | 3RT2327 |
|---|---|---|---|---|
| Size | S00 | S0 | | |
| **Short-circuit protection** | | | | |
| **Main circuit** | | | | |
| • Version of the fuse link required for short-circuit protection of the main circuit | | | | |
| - For type of coordination 1 | gG: 35 A (690 V, 100 kA) | gG: 63 A (690 V, 100 kA) | gG: 100 A (690 V, 100 kA), aM: 50 A (690 V, 100 kA), BS88: 100 A (415 V, 80 kA) | gG: 63 A (690 V, 100 kA) |
| - For type of coordination 2 | gG: 20 A (690 V, 100 kA) | | gG: 35 A (690 V, 100 kA), aM: 20 A (690 V, 100 kA), BS88: 35 A (415 V, 80 kA) | gG: 20 A (690 V, 100 kA) |
| **Auxiliary circuit** | | | | |
| • Version of the fuse link required for short-circuit protection of the auxiliary switch | Fuse gG: 10 A (690 V, 1 kA) | | | |
| • Miniature circuit breaker version required for short-circuit protection of the auxiliary switch | 6 A (230 V, 400 A, C characteristic) | | | |

| Type | 3RT2336, 3RT2337 | | 3RT2344, 3RT2346 | 3RT2346-1...0-4AA0 | 3RT2348 |
|---|---|---|---|---|---|
| Size | S2 | | S3 | | |
| **Short-circuit protection** | | | | | |
| **Main circuit** | | | | | |
| • Version of the fuse link required for short-circuit protection of the main circuit | | | | | |
| - For type of coordination 1 | gG: 160 A (690 V, 100 kA) | | gG: 250 A (690 V, 100 kA) | gG: 250 A (690 V, 100 kA), aM: 160 A (690 V, 100 kA), BS88: 200 A (415 V, 80 kA) | gG: 250 A (690 V, 100 kA) |
| - For type of coordination 2 | gG: 63 A (690 V, 100 kA) | gR: 80 A (690 V, 100 kA) | gR: 250 A (690 V, 100 kA) | gG: 160 A (690 V, 100 kA), aM: 100 A (690 V, 100 kA), BS88: 125 A (415 V, 80 kA) | gR: 250 A (690 V, 100 kA) |
| **Auxiliary circuit** | | | | | |
| • Version of the fuse link required for short-circuit protection of the auxiliary switch | Fuse gG: 10 A (690 V, 1 kA) | | | | |
| • Miniature circuit breaker version required for short-circuit protection of the auxiliary switch | 6 A (230 V, 400 A, C characteristic) | | | | |

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## SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

| Type | | | 3RT2316 | 3RT2317 | 3RT2325 | 3RT2326, 3RT2327 | 3RT2336, 3RT2337 | 3RT2344, 3RT2346, 3RT2348 |
|---|---|---|---|---|---|---|---|---|
| Size | | | S00 | | S0 | | S2 | S3 |
| **Control** | | | | | | | | |
| **Solenoid coil operating range** | | | | | | | | |
| • AC operation | At 50 Hz | | 0.8 ... 1.1 x $U_s$ | | | | | |
| | At 60 Hz | | 0.85 ... 1.1 x $U_s$ | | 0.8 ... 1.1 x $U_s$ | | | |
| • DC operation | At 50 °C | | 0.8 ... 1.1 x $U_s$ | | | | -- | |
| | At 60 °C | | 0.85 ... 1.1 x $U_s$ | | | | -- | |
| • AC/DC operation | | | -- | | | | 0.8 ... 1.1 x $U_s$ | |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | | | | |
| • AC operation, 50 Hz, standard version | | | | | | | | |
| - Closing | | VA | -- | | 77 | | 190 | 296 |
| - P.f. $\varphi$ | | | -- | | 0.82 | | 0.72 | 0.61 |
| - Closed | | VA | -- | | 9.8 | | 16 | 19 |
| - P.f. $\varphi$ | | | -- | | 0.25 | | 0.37 | 0.38 |
| • AC operation, 50/60 Hz, standard version | | | | | | | | |
| - Closing | | VA | 27/24.3 | 37/33 | 81/79 | | 210/188 | 348/296 |
| - P.f. $\varphi$ | | | 0.8/0.75 | | 0.72/0.74 | | 0.69/0.65 | 0.62/0.55 |
| - Closed | | VA | 4.2/3.3 | 5.7/4.4 | 10.5/8.5 | | 17.2/16.5 | 25/18 |
| - P.f. $\varphi$ | | | 0.25/0.25 | | 0.25/0.28 | | 0.36/0.39 | 0.35/0.41 |
| • AC operation, 60 Hz, USA, Canada | | | | | | | | |
| - Closing | | VA | 31.7 | 43 | 87 | | 188 | 326 |
| - P.f. $\varphi$ | | | 0.77 | | 0.76 | | 0.67 | 0.55 |
| - Closed | | VA | 4.8 | 6.5 | 9.4 | | 16.5 | 22 |
| - P.f. $\varphi$ | | | 0.25 | | 0.28 | | 0.37 | 0.4 |
| • AC/DC operation | | | | | | | | |
| - Closing for AC operation | | VA | -- | | | | 40 | 151 |
| - P.f. $\varphi$ | | | -- | | | | 0.95 | 0.95 |
| - Closed for AC operation | | VA | -- | | | | 2 | 3.5 |
| - P.f. $\varphi$ | | | -- | | | | 0.95 | 0.95 |
| - Closing for DC operation | | W | -- | | | | 23 | 76 |
| - Closed for DC operation | | W | -- | | | | 1 | 2.7 |
| • DC operation (closing = closed) | | W | 4 | | 5.9 | | -- | --[1] |

[1] In the case of AC/DC coils, increased pickup currents (6.5 A on average) arise during the first 200 ms.

| Type | | | 3RT2316 | 3RT2317 | 3RT2325 | 3RT2326 | 3RT2327 | 3RT2336 | 3RT2337 | 3RT2344 | 3RT2346 | 3RT2348 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | S00 | | S0 | | | S2 | | S3 | | |
| **Rated data of the main contacts** | | | | | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | | | | | |
| **Utilization category AC-1** | | | | | | | | | | | | |
| • Rated operational currents $I_e$ | At 40 °C, up to 690 V | A | 18 | 22 | 35 | 40 | 50 | 60 | 110 | 110 | 140 (110)[1] | 160 |
| | At 60 °C, up to 690 V | A | 16 | 20 | 30 | 35 | 42 | 55 | 95 | 100 | 130 (100)[1] | 140 |
| • Rated power for AC loads P.f. $\varphi$ = 0.95 (at 60 °C) | At 230 V | kW | 6 | 7.5 | 11 | 13 | 16 | 21 | 36 | 38 | 49 | 53 |
| | 400 V | kW | 10.5 | 13 | 20 | 23 | 28 | 36 | 63 | 72 | 92 | 105 |
| • Minimum cross-section in the main circuit at maximum AC-1 rated value | | $mm^2$ | 2.5 | 4 | 10 | | | 16 | 35 | | 50 (35)[1] | 70 |
| **Power loss per main conducting path** | | | | | | | | | | | | |
| • At $I_e$/AC-1 | At 40 °C | W | 1.1 | 1.6 | 1.8 | 2.4 | 3 | 3.2 | 9.7 | 7.3 | 11.8 | 15.4 |
| • At $I_e$/AC-3 | At 400 V | W | -- | -- | -- | (2.6)[1] | -- | (4.3)[1] | -- | -- | (6.8)[1] | -- |

[1] The values in brackets apply for 3RT23.6-1...0-4AA0 versions.

***Data for North America***

Technical specifications of 3RT contactors, see page 3/45 onwards.

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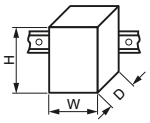
| Type | | 3RT1355-6A.36 | 3RT1363-6A.36 | 3RT1364-6A.36 | 3RT1373-6A.36, 3RT1374-6A.36, 3RT1375-6A.36 |
|---|---|---|---|---|---|
| Size | | S6 | S10 | | S12 |
| **General data** | | | | | |
| **Dimensions**  | | | | | |
| • Width | mm | 120 | 140 | | 184 |
| • Height | mm | 150 | 196 | | 225 |
| • Depth | mm | 128 | 153 | | 180 |
| **Mounting position** | | For vertical mounting surface can be rotated ± 180°, and with 0° rotation can be tilted forward or backward ± 30°, or standing | | | |
| **Installation altitude at height above sea level, maximum** | m | 2 000 | | | |
| **Insulation voltage at pollution degree 3** | | | | | |
| • Of the main circuit | V | 1 000 | | | |
| • Of the auxiliary circuit | V | 690 | | | |
| **Impulse withstand voltage** | | | | | |
| • Of the main circuit | kV | 8 | | | |
| • Of the auxiliary circuit | kV | 6 | | | |
| **Product function, mirror contact according to IEC 60947-4-1** | | Yes | | | |
| **Ambient temperature** | | | | | |
| • During operation | °C | -40 ... +60 | | | |
| • During storage | °C | -40 ... +70 | | | |
| **Short-circuit protection** | | | | | |
| **Version of the fuse link required** | | | | | |
| • For short-circuit protection of the main circuit for type of coordination 2 | | gG: 250 A (500 V, 100 kA) | gG: 355 A (500 V, 100 kA) | gG: 400 A (500 V, 100 kA) | gG: 630 A (500 V, 100 kA) |
| • For short-circuit protection of the auxiliary switch | | gG: 10 A (690 V, 1 kA) | | | |

| Type | | 3RT1355- | | | | 3RT1363- | | | | 3RT1364- | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 6AE36 | 6AF36 | 6AP36 | 6AR36 | 6AE36 | 6AF36 | 6AP36 | 6AR36 | 6AE36 | 6AF36 | 6AP36 | 6AR36 |
| Size | | S6 | | | | S10 | | | | | | | |
| **Control circuit/control** | | | | | | | | | | | | | |
| **Operating range factor of the control supply voltage, rated value of the solenoid coil** | | | | | | | | | | | | | |
| • At AC at 50 Hz | | 0.85 ... 1.1 | | | | | | | | | | | |
| • At AC at 60 Hz | | 0.85 ... 1.1 | | | | | | | | | | | |
| • At DC | | 0.8 ... 1.1 | | | | | | | | | | | |
| **Solenoid coil closing for DC** | W | 210 | 130 | 135 | 205 | | 130 | 190 | | 205 | 130 | 190 | |
| **Closing apparent power of the solenoid coil for AC** | | | | | | | | | | | | | |
| • At 50 Hz | VA | 225 | 170 | 130 | 205 | 165 | 175 | 220 | 185 | 165 | 175 | 220 | 185 |
| • At 60 Hz | VA | 225 | 170 | 130 | 205 | 165 | 175 | 220 | 185 | 165 | 175 | 220 | 185 |
| **Solenoid coil closed for DC** | W | 2.5 | | 3 | 4 | 2.5 | | | 4 | 2.5 | | | 4 |
| **Closed apparent power of the solenoid coil for AC** | | | | | | | | | | | | | |
| • At 50 Hz | VA | 5.5 | 4 | 6 | 16 | 6 | 4 | 7 | 16 | 6 | 4 | 7 | 16 |
| • At 60 Hz | VA | 5.5 | 4 | 6 | 16 | 6 | 4 | 7 | 16 | 6 | 4 | 7 | 16 |
| **Main circuit** | | | | | | | | | | | | | |
| **Operational current at AC-1** | | | | | | | | | | | | | |
| • Up to 690 V | | | | | | | | | | | | | |
| - At an ambient temperature of 40 °C | A | 200 | | | | 275 | | | | 350 | | | |
| - At an ambient temperature of 60 °C | A | 175 | | | | 250 | | | | 300 | | | |
| • Up to 1000 V | | | | | | | | | | | | | |
| - At an ambient temperature of 40 °C | A | -- | | | | 250 | | | | 275 | | | |
| - At an ambient temperature of 60 °C | A | -- | | | | 225 | | | | 250 | | | |

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## SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

| Type | | 3RT1373- | | | | 3RT1374- | | | | 3RT1375- | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 6AE36 | 6AF36 | 6AP36 | 6AR36 | 6AE36 | 6AF36 | 6AP36 | 6AR36 | 6AE36 | 6AF36 | 6AP36 | 6AR36 |
| Size | | S12 | | | | | | | | | | | |
| **Control circuit/control** | | | | | | | | | | | | | |
| **Operating range factor of the control supply voltage, rated value of the solenoid coil** | | | | | | | | | | | | | |
| • At AC at 50 Hz | | 0.85 ... 1.1 | | | | | | | | | | | |
| • At AC at 60 Hz | | 0.85 ... 1.1 | | | | | | | | | | | |
| • At DC | | 0.8 ... 1.1 | | | | | | | | | | | |
| **Solenoid coil closing for DC** | W | 400 | 360 | 410 | 600 | 400 | 360 | 410 | 600 | 400 | 360 | 410 | 600 |
| **Closing apparent power of the solenoid coil for AC** | | | | | | | | | | | | | |
| • At 50 Hz | VA | 475 | 340 | 385 | 420 | 475 | 340 | 385 | 420 | 475 | 340 | 385 | 420 |
| • At 60 Hz | VA | 475 | 340 | 385 | 420 | 475 | 340 | 385 | 420 | 475 | 340 | 385 | 420 |
| **Solenoid coil closed for DC** | W | 3.5 | 2.5 | 4.5 | 4.7 | 3.5 | 2.5 | 4.5 | 4.7 | 3.5 | 2.5 | 4.5 | 4.7 |
| **Closed apparent power of the solenoid coil for AC** | | | | | | | | | | | | | |
| • At 50 Hz | VA | 8.5 | 17 | 17.5 | 21 | 8.5 | 17 | 17.5 | 21 | 8.5 | 17 | 17.5 | 21 |
| • At 60 Hz | VA | 8.5 | 17 | 17.5 | 21 | 8.5 | 17 | 17.5 | 21 | 8.5 | 17 | 17.5 | 21 |
| **Main circuit** | | | | | | | | | | | | | |
| **Operational current at AC-1** | | | | | | | | | | | | | |
| • Up to 690 V | | | | | | | | | | | | | |
| - At an ambient temperature of 40 °C | A | 400 | | | | 500 | | | | 525 | | | |
| - At an ambient temperature of 60 °C | A | 350 | | | | 400 | | | | 425 | | | |
| • Up to 1000 V | | | | | | | | | | | | | |
| - At an ambient temperature of 40 °C | A | 350 | | | | 375 | | | | 400 | | | |
| - At an ambient temperature of 60 °C | A | 300 | | | | 325 | | | | 350 | | | |

| Type | | 3RT1355-6A.36 | 3RT1363-6A.36 | 3RT1364-6A.36 | 3RT1373-6A.36 | 3RT1374-6A.36 | 3RT1375-6A.36 |
|---|---|---|---|---|---|---|---|
| Size | | S6 | S10 | | S12 | | |
| **Conductor cross-sections** | | | | | | | |
| **Type of electrical connection for the main circuit** | | Connecting bar | | Connecting bar, bus connectors offset > 275 A required | Connecting bar | Connecting bar, bus connectors offset > 450 A required | |
| **Minimum cross-section in the main circuit at maximum AC-1 rated value** | $mm^2$ | 95 | 150 | 240 | | 300 | 370 |

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## Selection and ordering data

### *AC operation*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT231.-1A.00

3RT231.-2A.00

3RT232.-1A.00

3RT232.-2A.00

3RT233.-1A.00

3RT234.-1A.00

| Rated data AC-1, $t_u$: 40/60 °C | Auxiliary contacts | | | Rated control supply voltage $U_s$ | | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to 690 V | Ident. No. | Version | | 50/60 Hz AC | 50 Hz AC | Article No. | Price per PU | Article No. | Price per PU |
| A | | NO | NC | V | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | |
| ***Size S00*** | | | | | | | | | |
| 18/16 | **--** | -- | -- | 24 | -- | **3RT2316-1AB00** | | **3RT2316-2AB00** | |
| | | | | 110 | -- | **3RT2316-1AF00** | | **3RT2316-2AF00** | |
| | | | | 230 | | **3RT2316-1AP00** | | **3RT2316-2AP00** | |
| 22/20 | **--** | -- | -- | 24 | -- | **3RT2317-1AB00** | | **3RT2317-2AB00** | |
| | | | | 110 | -- | **3RT2317-1AF00** | | **3RT2317-2AF00** | |
| | | | | 230 | -- | **3RT2317-1AP00** | | **3RT2317-2AP00** | |
| ***Size S0*** | | | | | | | | | |
| 35/30[1] | **11** | 1 | 1 | -- | 24 | **3RT2325-1AB00** | | **3RT2325-2AB00** | |
| | | | | -- | 110 | **3RT2325-1AF00** | | **3RT2325-2AF00** | |
| | | | | -- | 230 | **3RT2325-1AP00** | | **3RT2325-2AP00** | |
| 40/35[1] | **11** | 1 | 1 | -- | 24 | **3RT2326-1AB00** | | **3RT2326-2AB00** | |
| | | | | -- | 110 | **3RT2326-1AF00** | | **3RT2326-2AF00** | |
| | | | | -- | 230 | **3RT2326-1AP00** | | **3RT2326-2AP00** | |
| 50/42[1] | **11** | 1 | 1 | -- | 24 | **3RT2327-1AB00** | | **3RT2327-2AB00** | |
| | | | | -- | 110 | **3RT2327-1AF00** | | **3RT2327-2AF00** | |
| | | | | -- | 230 | **3RT2327-1AP00** | | **3RT2327-2AP00** | |
| ***Size S2*** | | | | | | | | | |
| 60/55 | **11** | 1 | 1 | -- | 24 | **3RT2336-1AB00** | | **--** | |
| | | | | -- | 110 | **3RT2336-1AF00** | | **--** | |
| | | | | -- | 230 | **3RT2336-1AP00** | | **--** | |
| 110/95 | **11** | 1 | 1 | -- | 24 | **3RT2337-1AB00** | | **--** | |
| | | | | -- | 110 | **3RT2337-1AF00** | | **--** | |
| | | | | -- | 230 | **3RT2337-1AP00** | | **--** | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | |
| ***Size S3*** | | | | | | | | | |
| 110/100 | **11** | 1 | 1 | -- | 24 | **3RT2344-1AB00** | | **--** | |
| | | | | -- | 110 | **3RT2344-1AF00** | | **--** | |
| | | | | -- | 230 | **3RT2344-1AP00** | | **--** | |
| 140/130 | **11** | 1 | 1 | -- | 24 | **3RT2346-1AB00** | | **--** | |
| | | | | -- | 110 | **3RT2346-1AF00** | | **--** | |
| | | | | -- | 230 | **3RT2346-1AP00** | | **--** | |
| 160/140 | **11** | 1 | 1 | -- | 24 | **3RT2348-1AB00** | | **--** | |
| | | | | -- | 110 | **3RT2348-1AF00** | | **--** | |
| | | | | -- | 230 | **3RT2348-1AP00** | | **--** | |

[1] Required conductor cross-section 10 mm$^2$.

Other voltages according to page 4/52 on request.
Accessories and spare parts, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT.3 contactors, 4-pole, up to 525 A AC-3e

***AC operation***

Version for AC-3 and AC-3e motor loads

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT2326-1AP00-4AA0

3RT2336-1AP00-4AA0

3RT2346-1AP00-4AA0

| Rated data | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|
| AC-3/AC-3e, $t_u$: up to 60 °C | AC-1, $t_u$: 40/60 °C | | | | | | | | |
| Operational current $I_e$ up to 400 V | Operational current $I_e$ up to 690 V | Ident. No. | Version | | 50 Hz AC | Article No. | Price per PU | Article No. | Price per PU |
| | | | NO | NC | | | | | |
| A | A | | | | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | |
| ***Size S0*** | | | | | | | | | |
| 32 | 40/35 | **11** | 1 | 1 | 230 | **3RT2326-1AP00-4AA0** | | -- | |
| ***Size S2*** | | | | | | | | | |
| 50 | 60/55 | **11** | 1 | 1 | 230 | **3RT2336-1AP00-4AA0** | | -- | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | |
| ***Size S3*** | | | | | | | | | |
| 95 | 110/100 | **11** | 1 | 1 | 230 | **3RT2346-1AP00-4AA0** | | -- | |

Other voltages according to page 4/52 on request.

Accessories and spare parts, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***DC operation*** ⎓

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT231.-1B.40

3RT231.-2B.40

3RT232.-1B.40

3RT232.-2B.40

| Rated data AC-1, $t_u$: 40/60 °C<br>Operational current $I_e$ up to 690 V | Auxiliary contacts | | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|
| | Ident. No. | Version | | DC | Article No. | Price per PU | Article No. | Price per PU |
| A | | NO | NC | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | |
| ***Size S00*** | | | | | | | | |
| 18/16 | **--** | -- | -- | 24<br>220 | **3RT2316-1BB40**<br>**3RT2316-1BM40** | | **3RT2316-2BB40**<br>**3RT2316-2BM40** | |
| 22/20 | **--** | -- | -- | 24<br>220 | **3RT2317-1BB40**<br>**3RT2317-1BM40** | | **3RT2317-2BB40**<br>**3RT2317-2BM40** | |
| ***Size S0*** | | | | | | | | |
| 35/30[1)] | **11** | 1 | 1 | 24<br>220 | **3RT2325-1BB40**<br>**3RT2325-1BM40** | | **3RT2325-2BB40**<br>**3RT2325-2BM40** | |
| 40/35[1)] | **11** | 1 | 1 | 24<br>220 | **3RT2326-1BB40**<br>**3RT2326-1BM40** | | **3RT2326-2BB40**<br>**3RT2326-2BM40** | |
| 50/42[1)] | **11** | 1 | 1 | 24<br>220 | **3RT2327-1BB40**<br>**3RT2327-1BM40** | | **3RT2327-2BB40**<br>**3RT2327-2BM40** | |

[1)] Required conductor cross-section 10 mm$^2$.

Other voltages according to page 4/52 on request.

Accessories and spare parts, see page 3/69 onwards.

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## SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

***AC/DC operation*** ≂

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT233.-1N.30

3RT234.-1N.30

| Rated data<br>AC-1, $t_u$: 40/60 °C<br>Operational current $I_e$ up to 690 V | Auxiliary contacts<br>Ident. No. | Version | | Rated control supply voltage $U_s$<br>50/60 Hz AC or DC | Screw terminals<br>Article No. | Price per PU | Spring-loaded terminals<br>Article No. | Price per PU |
|---|---|---|---|---|---|---|---|---|
| A | | NO | NC | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | |
| ***Size S2*** | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | |
| 60/55 | **11** | 1 | 1 | 20 ... 33 | **3RT2336-1NB30** | | -- | |
| | | | | 175 ... 280 | **3RT2336-1NP30** | | -- | |
| 110/95 | **11** | 1 | 1 | 20 ... 33 | **3RT2337-1NB30** | | -- | |
| | | | | 175 ... 280 | **3RT2337-1NP30** | | -- | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | |
| ***Size S3*** | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | |
| 110/100 | **11** | 1 | 1 | 20 ... 33 | **3RT2344-1NB30** | | -- | |
| | | | | 175 ... 280 | **3RT2344-1NP30** | | -- | |
| 140/130 | **11** | 1 | 1 | 20 ... 33 | **3RT2346-1NB30** | | -- | |
| | | | | 175 ... 280 | **3RT2346-1NP30** | | -- | |
| 160/140 | **11** | 1 | 1 | 20 ... 33 | **3RT2348-1NB30** | | -- | |
| | | | | 175 ... 280 | **3RT2348-1NP30** | | -- | |

Other voltages according to page 4/52 on request.

Accessories and spare parts, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***AC/DC operation***

Version for AC-3 and AC-3e motor loads

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT2336-1NB30-4AA0

3RT2346-1NB30-4AA0

| Rated data | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|
| AC-3/AC-3e, $t_u$: up to 60 °C | AC-1, $t_u$: 40/60 °C | Ident. No. | Version | | 50/60 Hz AC or DC | Article No. | Price per PU | Article No. | Price per PU |
| Operational current $I_e$ up to 400 V | Operational current $I_e$ up to 690 V | | NO | NC | | | | | |
| A | A | | | | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | |
| ***Size S2*** | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | |
| 50 | 60/55 | **11** | 1 | 1 | 20 ... 33 | **3RT2336-1NB30-4AA0** | | -- | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | |
| ***Size S3*** | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | |
| 95 | 110/100 | **11** | 1 | 1 | 20 ... 33 | **3RT2346-1NB30-4AA0** | | -- | |

Other voltages according to page 4/52 on request.

Accessories and spare parts, see page 3/69 onwards.

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## SIRIUS 3RT.3 contactors, 4-pole, up to 525 A

***Sizes S6 to S12: AC/DC operation*** ≂

- Solid-state operating mechanism
- Version with two laterally mounted auxiliary switches (2 NO + 2 NC each)
- For screw fixing
- Auxiliary and control circuits: Screw terminals
- Main conductors: Busbar connections; a connection kit is enclosed.

3RT1355-6A.36

3RT1363-6A.36

3RT1373-6A.36

| Size | Rated data AC-1, $t_u$: 40 °C | Auxiliary contacts, lateral | | Operating range 0.85 ... 1.1 x $U_s$ | 0.8 ... 1.1 x $U_s$ | **Busbar connections** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Rated control supply voltage $U_s$ | | | | | |
| | Operational current $I_e$ at 690 V | Version | | 50/60 Hz AC | DC | Article No. | Price per PU | | |
| | A | NO | NC | V | V | | | | |
| **Solid-state operating mechanism** | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | |
| **S6** | 200 | 2 | 2 | 24 ... 60 | 20 ... 60 | **3RT1355-6AE36** | 1 | 1 unit | 41B |
| | | | | 48 ... 130 | 48 ... 130 | **3RT1355-6AF36** | 1 | 1 unit | 41B |
| | | | | 100 ... 250 | 100 ... 250 | **3RT1355-6AP36** | 1 | 1 unit | 41B |
| | | | | 250 ... 500 | 250 ... 500 | **3RT1355-6AR36** | 1 | 1 unit | 41B |
| **S10** | 275 | 2 | 2 | 24 ... 60 | 20 ... 60 | **3RT1363-6AE36** | 1 | 1 unit | 41B |
| | | | | 48 ... 130 | 48 ... 130 | **3RT1363-6AF36** | 1 | 1 unit | 41B |
| | | | | 100 ... 250 | 100 ... 250 | **3RT1363-6AP36** | 1 | 1 unit | 41B |
| | | | | 250 ... 500 | 250 ... 500 | **3RT1363-6AR36** | 1 | 1 unit | 41B |
| | 350 | 2 | 2 | 24 ... 60 | 20 ... 60 | **3RT1364-6AE36** | 1 | 1 unit | 41B |
| | | | | 48 ... 130 | 48 ... 130 | **3RT1364-6AF36** | 1 | 1 unit | 41B |
| | | | | 100 ... 250 | 100 ... 250 | **3RT1364-6AP36** | 1 | 1 unit | 41B |
| | | | | 250 ... 500 | 250 ... 500 | **3RT1364-6AR36** | 1 | 1 unit | 41B |
| **S12** | 400 | 2 | 2 | 24 ... 60 | 20 ... 60 | **3RT1373-6AE36** | 1 | 1 unit | 41B |
| | | | | 48 ... 130 | 48 ... 130 | **3RT1373-6AF36** | 1 | 1 unit | 41B |
| | | | | 100 ... 250 | 100 ... 250 | **3RT1373-6AP36** | 1 | 1 unit | 41B |
| | | | | 250 ... 500 | 250 ... 500 | **3RT1373-6AR36** | 1 | 1 unit | 41B |
| | 500 | 2 | 2 | 24 ... 60 | 20 ... 60 | **3RT1374-6AE36** | 1 | 1 unit | 41B |
| | | | | 48 ... 130 | 48 ... 130 | **3RT1374-6AF36** | 1 | 1 unit | 41B |
| | | | | 100 ... 250 | 100 ... 250 | **3RT1374-6AP36** | 1 | 1 unit | 41B |
| | | | | 250 ... 500 | 250 ... 500 | **3RT1374-6AR36** | 1 | 1 unit | 41B |
| | 525 | 2 | 2 | 24 ... 60 | 20 ... 60 | **3RT1375-6AE36** | 1 | 1 unit | 41B |
| | | | | 48 ... 130 | 48 ... 130 | **3RT1375-6AF36** | 1 | 1 unit | 41B |
| | | | | 100 ... 250 | 100 ... 250 | **3RT1375-6AP36** | 1 | 1 unit | 41B |
| | | | | 250 ... 500 | 250 ... 500 | **3RT1375-6AR36** | 1 | 1 unit | 41B |

Depending on the operational current, bus connectors offset must be used for sizes S10 and S12, see page 4/35:

- 3RT136: For more than 275 A, the 3RT1966-4D bus connectors offset must be used.
- 3RT137: For more than 450 A, the 3RT1976-4D bus connectors offset must be used.

Accessories and spare parts, see page 4/35 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Accessories

Overview graphic for 3RT135 to 3RT137 contactors with mountable accessories, see page 4/23.

**More information**

Equipment Manual, see
https://support.industry.siemens.com/cs/ww/en/view/60306557

| | For contactors | Auxiliary contacts Version | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Type | NO | NC | Left | Right | | | | | |
| **Second auxiliary switch (1 NO + 1 NC)** | | | | | | | | | | |
| | Lateral mounting on the right and/or the left, 2-pole | | | | | **Screw terminals** | | | | |
| 3RH1951-1SA11 | 3RT135 ... 3RT137 | 1 | 1 | 53 61 / 54 62 | 71 83 / 72 84 | **3RH1951-1SA11** | | 1 | 1 unit | 41B |
| **Terminal covers** | | | | | | | | | | |
| | Two units required per contactor (1 set = 2 units) | | | | | | | | | |
| | Either bus connectors offset or terminal covers can be used. | | | | | | | | | |
| 3RT1956-4EB10 | 3RT135 | -- | -- | -- | -- | **3RT1956-4EB10** | | 1 | 1 unit | 41B |
| 3RT1966-4EB10 | 3RT136 | -- | -- | -- | -- | **3RT1966-4EB10** | | 1 | 1 unit | 41B |
| 3RT1976-4EB10 | 3RT137 | -- | -- | -- | -- | **3RT1976-4EB10** | | 1 | 1 unit | 41B |
| **Bus connectors offset** | | | | | | | | | | |
| | (Two units required per contactor) | | | | | | | | | |
| | Either terminal covers or bus connectors offset can be used. | | | | | | | | | |
| 3RT1966-4D | 3RT136 | -- | -- | -- | -- | **3RT1966-4D** | | 1 | 1 unit | 41B |
| 3RT1976-4D | 3RT137 | -- | -- | -- | -- | **3RT1976-4D** | | 1 | 1 unit | 41B |
| **Mechanical interlocks for contactor assemblies** | | | | | | | | | | |
| | Enables two 3RT13 contactors of the same size (S6, S10 and S12) to be interlocked with each other. The laterally mounted auxiliary switches of the contactor must be removed beforehand. | | | | | | | | | |
| | The mechanical interlock cannot be used in conjunction with the bus connectors offset. | | | | | | | | | |
| 3RA1954-3A | 3RT135 ... 3RT137 | -- | -- | -- | -- | **3RA1954-3A** | | 1 | 1 unit | 41B |

## Spare parts

| | For contactors | Auxiliary contacts Version | | | | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Type | NO | NC | Left | Right | Article No. | Price per PU | | | |
| **First auxiliary switch (1 NO + 1 NC)** | | | | | | | | | | |
| | Lateral mounting on the right and/or the left, 2-pole | | | | | | | | | |
| 3RH1951-1TA11 | 3RT135 ... 3RT137 | 1 | 1 | 13 21 / 14 22 | 31 43 / 32 44 | **3RH1951-1TA11** | | 1 | 1 unit | 41B |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC



### Overview

***Standards***

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1 (auxiliary switches)

***Protecting connections against short circuit, overload and overvoltage***

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on complete units such as contactors with overload relays or contactors with motor starter protectors as the motor feeder, see Configuration Manual for load feeders.

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage connections or supply voltage connections

First of all, the relevant standards and regulations for configuring control panels and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state operating mechanisms, switch-on power, holding power).

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control panel tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Protection against overvoltage at the control supply voltage connection

3RT25 contactors supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil and can be ordered separately as accessories, see page 3/97 onwards.

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more information about influencing the time response using damping, see Equipment Manual.

***Replacing solenoid coils or spare contacts***

Solenoid coil or contact replacement is possible.

***Fitting auxiliary contacts and mounting additional auxiliary switches***

Features in the delivery state

The 3RT252 to 3RT254 basic units contain two integrated auxiliary contacts (1 NO + 1 NC).

Expansion possibilities

All basic units can be expanded using auxiliary switches; the permissible configuration must be observed.

For detailed information about the fitting of auxiliary switches for 3RT25 contactors, see pages 3/81 to 3/86.

***Accessories***

The accessories for the 3-pole SIRIUS 3RT2 contactors can also be used for the 4-pole versions, see page 3/69 onwards.

***Use of 3RT contactors with IE3 and IE4 motors***

Note:

For the use of 3RT25 contactors in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

More information, see page 1/8.

### Application

The contactors are suitable:

- For changing the polarity of hoisting gear motors
- For switching two separate loads

Note:

Single device for pole reversal; not suitable for reversing operation. 3RT25 contactors are not suitable for switching a load between two current sources.

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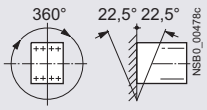
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16169/td<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16169/faq | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16169/man |

| Type | | 3RT2516 to 3RT2518 | 3RT2526 | 3RT2535 | 3RT2536 | 3RT2544, 3RT2545 |
|---|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | | S3 |
| **General data** | | | | | | |
| **Dimensions (W x H x D)** | | See 3RT231., page 4/24 | See 3RT232., page 4/24 | See 3RT233., page 4/24 | | See 3RT234., page 4/24 |
| **Permissible mounting position**<br>The contactors are designed for operation on a vertical mounting surface. | |  | | | | |
| Upright mounting position | | <br>Special version required | | | | |
| **Mechanical endurance** | Operating cycles | 30 million | 10 million | | | |
| **Electrical endurance at $I_e$/AC-1** | Operating cycles | Approx. 0.5 million | | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 690 | | | | |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | V | 400 | | | | 690 |
| **Permissible ambient temperature** | | | | | | |
| • During operation | °C | -25 ... +60 | | | | |
| • During storage | °C | -55 ... +80 | | | | |
| **Short-circuit protection** | | | | | | |
| **Main circuit** | | | | | | |
| • Version of the fuse link required for short-circuit protection of the main circuit | | | | | | |
| - For type of coordination 1 | | gG: 35 A (690 V, 100 kA) | gG: 63 A (690 V, 100 kA) | gG: 125 A (690 V, 100 kA) | gG: 160 A (690 V, 100 kA) | gG: 250 A (690 V, 100 kA) |
| - For type of coordination 2 | | gG: 20 A (690 V, 100 kA) | gG: 35 A (690 V, 50 kA) | gG: 63 A (690 V, 100 kA) | gG: 80 A (690 V, 100 kA) | gR: 250 A (690 V, 100 kA) |
| **Auxiliary circuit** | | | | | | |
| • Version of the fuse link required for short-circuit protection of the auxiliary switch | | Fuse gG: 10 A (690 V, 1 kA) | | | | |
| • Version of the miniature circuit breaker required for short-circuit protection of the auxiliary switch | | 6 A (230 V, 400 A, C characteristic) | | | | |

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## SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC

| Type | | | 3RT2516-1A | 3RT2517-1A, 3RT2518-1A | 3RT2516-1B, 3RT2517-1B, 3RT2518-1B | 3RT2526-1A | 3RT2526-1B | 3RT253.-1A | 3RT253.-1N | 3RT254.-1A | 3RT254.-1N |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | S00 | | | S0 | | S2 | | S3 | |
| **Control** | | | | | | | | | | | |
| **Type of operating mechanism** | | | AC | | DC | AC | DC | AC | AC/DC | AC | AC/DC |
| **Solenoid coil operating range** | | | | | | | | | | | |
| • AC operation | At 50 Hz | | 0.8 ... 1.1 x $U_s$ | | -- | 0.8 ... 1.1 x $U_s$ | -- | 0.8 ... 1.1 x $U_s$ | -- | 0.8 ... 1.1 x $U_s$ | -- |
| | At 60 Hz | | 0.85 ... 1.1 x $U_s$ | | -- | 0.8 ... 1.1 x $U_s$ | -- | 0.8 ... 1.1 x $U_s$ | -- | 0.8 ... 1.1 x $U_s$ | -- |
| • DC operation | Up to 50 °C | | -- | | 0.8 ... 1.1 x $U_s$ | -- | 0.8 ... 1.1 x $U_s$ | -- | | | |
| | Up to 60 °C | | -- | | 0.85 ... 1.1 x $U_s$ | -- | 0.8 ... 1.1 x $U_s$ | -- | | | |
| • AC/DC operation | | | -- | | | | | | 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$ | -- | 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$ |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | | | | | | | |
| • AC operation, 50/60 Hz, standard version | | | | | | | | | | | |
| - Closing | | VA | 27/24.3 | 37/33 | -- | 81/79 | -- | 210/188 | 110 | 348/296 | -- |
| - P.f. $\varphi$ | | | 0.8/0.75 | | -- | 0.72/0.74 | -- | 0.69/0.65 | 0.95 | 0.62/0.55 | -- |
| - Closed | | VA | 4.2/3.3 | 5.7/4.4 | -- | 10.5/8.5 | -- | 17.2/16.5 | 2.5 | 25/18 | -- |
| - P.f. $\varphi$ | | | 0.25/0.25 | | -- | 0.25/0.28 | -- | 0.36/0.39 | 0.95 | 0.35/0.41 | -- |
| • DC operation | | | | | | | | | | | |
| - Closing | | W | -- | | 4 | -- | 5.9 | 23 | 70 | -- | 76 |
| - Closed | | W | -- | | 4 | -- | 5.9 | 1 | 1.5 | -- | 1.8 |

| Type | | | | 3RT2516 | 3RT2517 | 3RT2518 | 3RT2526 | | 3RT2535 | 3RT2536 | 3RT2544 | 3RT2545 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | | S00 | | | S0 | | S2 | | S3 | |
| **Rated data of the main contacts** | | | | | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | | | | | |
| **Utilization category AC-1** | | | | | | | | | | | | |
| • Rated operational currents $I_e$ | At 40 °C up to 690 V | | A | 18 | 22 | | 40 | | 60 | 70 | 100 | 125 |
| | At 60 °C up to 690 V | | A | 16 | 20 | | 35 | | 55 | 60 | 90 | 105 |
| • Rated power for AC loads P.f. $\varphi$ = 0.95 (at 60 °C) | | At 230 V | kW | 6 | 7.5 | | 13.3 | | 21 | 23 | 34 | 59 |
| | | 400 V | kW | 10.5 | 13 | | 23 | | 36 | 39 | 40 | 69 |
| • Minimum cross-section in the main circuit at maximum AC-1 rated value | | | $mm^2$ | 2.5 | 4 | | 10 | | 16 | 25 | 35 | 50 |
| **Utilization category AC-3** | | | | | | | AC[1] | DC[1] | | | | |
| • Rated operational currents $I_e$ (at 60 °C) | NO up to 400 V | | A | 9 | 12 | 16 | 25 | | 35 | 41 | 65 | 80 |
| | NC up to 400 V | | A | 9 | | | 25 | 20 | 35 | 41 | 65 | 80 |
| • Rated power for slip-ring or squirrel-cage motors at 50 and 60 Hz | NO at 230 V | | kW | 2.2 | 3 | 4 | 5.5 | | 11 | | 18.5 | 22 |
| | NC at 230 V | | kW | 2.2 | | | 5.5 | | 11 | | 18.5 | 22 |
| | NO at 400 V | | kW | 4 | 5.5 | 7.5 | 11 | | 18.5 | 22 | 30 | 37 |
| | NC at 400 V | | kW | 4 | | | 11 | 7.5 | 18.5 | 22 | 30 | 37 |

[1] Values for devices with AC and DC operation: For 3RT2526 with DC operation, different values apply to AC-3 for the NC.

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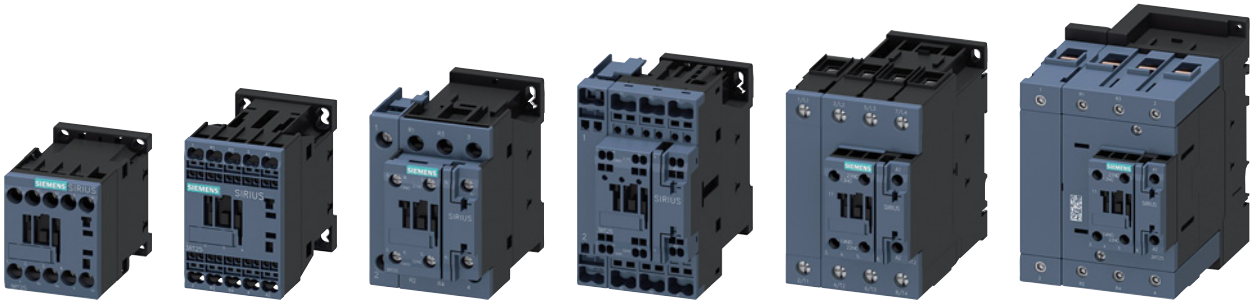
## Selection and ordering data

### *AC operation*

Single device for pole reversal (not suitable for reversing operation)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B



3RT251.-1A.00 3RT251.-2A.00 3RT252.-1A.00 3RT252.-2A.00 3RT253.-1A.00 3RT254.-1A.00

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AC-3, $t_u$: up to 60 °C | | AC-1, $t_u$: 40/60 °C | Ident. No. | Version | | 50/60 Hz AC | 50 Hz AC | | | | |
| Operational current $I_e$ up to | Ratings of three-phase motors at 50 Hz and | Operational current $I_e$ up to | | | | | | Article No. | Price per PU | Article No. | Price per PU |
| 400 V | **400 V** | 690 V | | | | | | | | | |
| A | **kW** | A | | NO | NC | V | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | | |
| 9 | **4** | 18/16 | **--** | -- | -- | 24 | -- | **3RT2516-1AB00** | | **3RT2516-2AB00** | |
| | | | | | | 110 | -- | **3RT2516-1AF00** | | **3RT2516-2AF00** | |
| | | | | | | 230 | -- | **3RT2516-1AP00** | | **3RT2516-2AP00** | |
| 12/9[1] | **5.5/4[1]** | 22/20 | **--** | -- | -- | 24 | -- | **3RT2517-1AB00** | | **3RT2517-2AB00** | |
| | | | | | | 110 | -- | **3RT2517-1AF00** | | **3RT2517-2AF00** | |
| | | | | | | 230 | -- | **3RT2517-1AP00** | | **3RT2517-2AP00** | |
| 16/9[1] | **7.5/4[1]** | 22/20 | **--** | -- | -- | 24 | -- | **3RT2518-1AB00** | | **3RT2518-2AB00** | |
| | | | | | | 110 | -- | **3RT2518-1AF00** | | **3RT2518-2AF00** | |
| | | | | | | 230 | -- | **3RT2518-1AP00** | | **3RT2518-2AP00** | |
| ***Size S0*** | | | | | | | | | | | |
| 25 | **11** | 40/35 | **11** | 1 | 1 | -- | 24 | **3RT2526-1AB00** | | **3RT2526-2AB00** | |
| | | | | | | -- | 110 | **3RT2526-1AF00** | | **3RT2526-2AF00** | |
| | | | | | | -- | 230 | **3RT2526-1AP00** | | **3RT2526-2AP00** | |
| ***Size S2*** | | | | | | | | | | | |
| 35 | **18.5** | 60/55 | **11** | 1 | 1 | -- | 24 | **3RT2535-1AB00** | | **--** | |
| | | | | | | -- | 110 | **3RT2535-1AF00** | | **--** | |
| | | | | | | -- | 230 | **3RT2535-1AP00** | | **--** | |
| 41 | **22** | 70/60 | **11** | 1 | 1 | -- | 24 | **3RT2536-1AB00** | | **--** | |
| | | | | | | -- | 110 | **3RT2536-1AF00** | | **--** | |
| | | | | | | -- | 230 | **3RT2536-1AP00** | | **--** | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | | | |
| ***Size S3*** | | | | | | | | | | | |
| 65 | **30** | 100/90 | **11** | 1 | 1 | -- | 24 | **3RT2544-1AB00** | | **--** | |
| | | | | | | -- | 110 | **3RT2544-1AF00** | | **--** | |
| | | | | | | -- | 230 | **3RT2544-1AP00** | | **--** | |
| 80 | **37** | 125/105 | **11** | 1 | 1 | -- | 24 | **3RT2545-1AB00** | | **--** | |
| | | | | | | -- | 110 | **3RT2545-1AF00** | | **--** | |
| | | | | | | -- | 230 | **3RT2545-1AP00** | | **--** | |

[1] Values for NO contact/NC contact. The NC contact can switch no more than 4 kW.

Other voltages according to page 4/52 on request.
Accessories and spare parts, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT25 contactors, 4-pole, 2 NO + 2 NC

### *DC operation*

Single device for pole reversal (not suitable for reversing operation)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT251.-1B.40

3RT251.-2B.40

3RT252.-1B.40

3RT252.-2B.40

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3, $t_u$: up to 60 °C | | AC-1, $t_u$: 40/60 °C | Ident. No. | Version | | DC | | | | |
| Operational current $I_e$ up to 400 V | Ratings of three-phase motors at 50 Hz and **400 V** | Operational current $I_e$ up to 690 V | | NO | NC | | Article No. | Price per PU | Article No. | Price per PU |
| A | **kW** | A | | | | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | |
| 9 | **4** | 18/16 | **--** | -- | -- | 24<br>220 | **3RT2516-1BB40**<br>**3RT2516-1BM40** | | **3RT2516-2BB40**<br>**3RT2516-2BM40** | |
| 12/9[1] | **5.5/4[1]** | 22/20 | **--** | -- | -- | 24<br>220 | **3RT2517-1BB40**<br>**3RT2517-1BM40** | | **3RT2517-2BB40**<br>**3RT2517-2BM40** | |
| 16/9[1] | **7.5/4[1]** | 22/20 | **--** | -- | -- | 24<br>220 | **3RT2518-1BB40**<br>**3RT2518-1BM40** | | **3RT2518-2BB40**<br>**3RT2518-2BM40** | |
| ***Size S0*** | | | | | | | | | | |
| 25 (20)[2] | **11 (7.5)[2]** | 40/35 | **11** | 1 | 1 | 24<br>220 | **3RT2526-1BB40**<br>**3RT2526-1BM40** | | **3RT2526-2BB40**<br>**3RT2526-2BM40** | |

[1] Values for NO contact/NC contact. The NC contact can switch no more than 4 kW.

[2] Value in brackets for NC contact (the deviating value for the NC contact applies only for devices with DC operation).

Other voltages according to page 4/52 on request.
Accessories and spare parts, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***AC/DC operation*** ≂

Single device for pole reversal (not suitable for reversing operation)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41B

3RT253.-1N.30

3RT254.-1N.30

| Rated data | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|---|---|
| AC-3, $t_u$: up to 60 °C | | AC-1, $t_u$: 40/60 °C | Ident. No. | Version | | 50/60 Hz AC or DC | Article No. | Price per PU | Article No. | Price per PU |
| Operational current $I_e$ up to 400 V | Ratings of three-phase motors at 50 Hz and **400 V** | Operational current $I_e$ up to 690 V | | NO | NC | V | | | | |
| A | **kW** | A | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | |
| ***Size S2*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 35 | **18.5** | 60/55 | **11** | 1 | 1 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2535-1NB30**<br>**3RT2535-1NF30**<br>**3RT2535-1NP30** | | **--**<br>**--**<br>**--** | |
| 41 | **22** | 70/60 | **11** | 1 | 1 | 20 ... 33<br>83 ... 155<br>175 ... 280 | **3RT2536-1NB30**<br>**3RT2536-1NF30**<br>**3RT2536-1NP30** | | **--**<br>**--**<br>**--** | |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | | |
| ***Size S3*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| 65 | **30** | 100/90 | **11** | 1 | 1 | 20 ... 33<br>175 ... 280 | **3RT2544-1NB30**<br>**3RT2544-1NP30** | | **--**<br>**--** | |
| 80 | **37** | 125/105 | **11** | 1 | 1 | 20 ... 33<br>175 ... 280 | **3RT2545-1NB30**<br>**3RT2545-1NP30** | | **--**<br>**--** | |

Other voltages according to page 4/52 on request.
Accessories and spare parts, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole



### Overview

#### *Standards*

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1, IEC 60831-1, IEC 61921

#### *Function*

The 3RT26 contactors are special versions of the 3RT2, designed for switching capacitive loads (AC-6b) up to 100 kvar at 400 V.

Characteristic components of the 3RT26 contactors are the precharging resistors switched on via leading auxiliary contacts, which are closed before the main contacts. This limits the peak charging current of capacitive loads and thus minimizes negative impacts on the power supply network.

The 3RT26 contactors are suitable for switching choked or unchoked capacitors in reactive current compensation systems and are also used to switch converters.

#### *Protecting connections against short circuit, overload and overvoltage*

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on complete units such as contactors with overload relays or contactors with motor starter protectors as the motor feeder, see Configuration Manual for load feeders.

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage connections or supply voltage connections

First of all, the relevant standards and regulations for configuring control panels and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state operating mechanisms, switch-on power, holding power).

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control panel tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Protection against overvoltage at the control supply voltage connection

3RT26 contactors supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil and can be ordered separately as accessories, see page 3/97 onwards.

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more information about influencing the time response using damping, see Equipment Manual.

#### *Fitting auxiliary contacts and mounting additional auxiliary switches*

Features in the delivery state

- 3RT261 contactors:
  The basic units are equipped with a 4-pole front-mounted auxiliary switch with one freely accessible contact. The other three contacts are assigned to the precharging resistors. Additional free auxiliary contacts are provided in the basic unit (depending on the version, 1 NO + 1 NC or 2 NO).
- 3RT262 contactors:
  The basic units are equipped with a 4-pole front-mounted auxiliary switch with one freely accessible contact. The other three contacts are assigned to the precharging resistors. Two additional free auxiliary contacts are provided in the basic unit (1 NO + 1 NC).
- 3RT263 and 3RT264 contactors:
  The auxiliary contacts for the resistors are already integrated in the basic units, which do not have any additional integrated and freely assignable auxiliary contacts. A 2-pole lateral auxiliary switch is already mounted on the left (depending on the version, 1 NO + 1 NC or 2 NC).

Expansion possibilities

All 3RT263 and 3RT264 contactors can be expanded using lateral auxiliary switches; the permissible configuration must be observed.

| Type<br>Size | 3RT261<br>S00 | 3RT262<br>S0 | 3RT263, 3RT264<br>S2, S3 |
|---|---|---|---|
| Number of unassigned auxiliary contacts as delivered from the factory | 2 | 3 | 2 |
| Number of expansion auxiliary contacts that can be fitted | 0 | 0 | 2 |

#### *Conductor cross-sections*

In order to connect the required minimum cross-section, the use of 3RV2935-5A 3-phase infeed terminal may be necessary for 3RT263 contactors and of 3RA2943-3L 1-phase infeed terminal for 3RT264 contactors, see page 3/110. These infeed terminals enable the clamping of larger cross-sections than the device connection itself actually allows.

For 3RT2628 contactors, this infeed terminal is included in the scope of supply and is mounted on the contactor.

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## Technical specifications

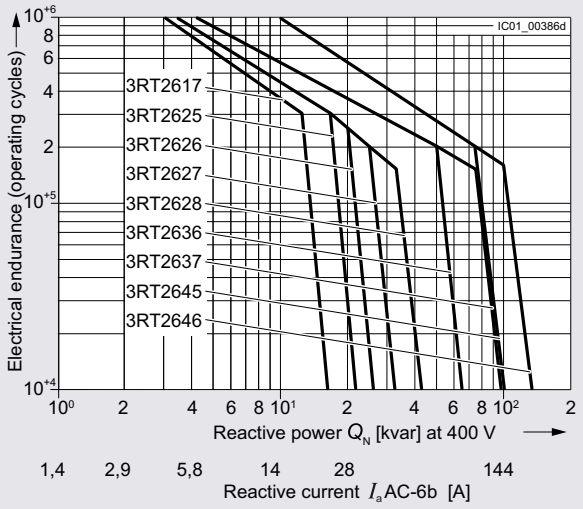
| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16171/td | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16171/man |

| | |
|---|---|
| Type | **3RT26** |
| Size | **S00 to S3** |

### Contact endurance of the main contacts

The characteristic curves show the contact endurance of the contactors when switching capacitive loads (AC-6b) depending on the reactive power $Q_N$ and the rated operational voltage.

The rated operational current $I_e$ complies with utilization category AC-6b (breaking of 1.35 times the rated operational current) and is intended for a contact endurance of approximately 150 000 to 200 000 operating cycles.



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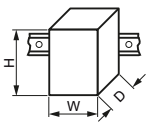
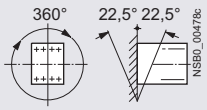
## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

All technical specifications not mentioned in the table below are identical to those of the 3RT20 contactors:

- For size S00 as for the 3RT201 contactors
- For size S0 as for the 3RT202 contactors
- For size S2 as for the 3RT203 contactors
- For size S3 as for the 3RT204 contactors

See page 3/25 onwards.

| Type | | 3RT2617 | 3RT2625 | 3RT2626 | 3RT2627 | 3RT2628 | 3RT2636 | 3RT2637 | 3RT2645 | 3RT2646 |
|---|---|---|---|---|---|---|---|---|---|---|
| Size | | S00 | S0 | | | | S2 | | S3 | |
| **General data** | | | | | | | | | | |
| **Dimensions (W x H x D)** Including auxiliary switches and connecting cables | |  | | | | | | | | |
| • AC operation | mm | 45 x 125 x 120 | 45 x 135 x 155 | | | 45 x 150 x 155 | 65 x 114 x 130 | | 80 x 140 x 152 | |
| • DC operation, AC/DC operation | mm | 45 x 125 x 120 | 45 x 135 x 165 | | | 45 x 150 x 165 | 65 x 114 x 130 | | 80 x 140 x 152 | |
| **Permissible mounting position** The contactors are designed for operation on a vertical mounting surface. | |   | | | | | | | | |
| **Mechanical endurance** | | | | | | | | | | |
| Basic units with mounted auxiliary switch | Operating cycles | 3 million | | | | | | | | |
| **Electrical endurance** For apparent power at 400 V | kvar | 12.5 | 16.7 | 20 | 25 | 33 | 50 | 75 | | 100 |
| | Operating cycles | 300 000 | 200 000 | | | 150 000 | 200 000 | 150 000 | 200 000 | 150 000 |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 690 | | | | | | | 1 000[2] | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | | | | | | | 8[2] | |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | V | 400 | | | | | | | 690 | |
| **Permissible ambient temperature** | | | | | | | | | | |
| • During operation[1] | °C | -25 ... +60 | | | | | | | | |
| • During storage | °C | -55 ... +80 | | | | | | | | |
| **Short-circuit protection** | | | | | | | | | | |
| **Main circuit** Fuse links, operational class gG: LV HRC, type 3NA; DIAZED, type 5SB; NEOZED, type 5SE according to IEC 60947-4-1 | | | | | | | | | | |
| • Type of coordination "1" | A | 25 ... 40 | 32 ... 80 | 40 ... 80 | 50 ... 100 | 63 ... 100 | 100 ... 160 | 160 ... 200 | | 200 ... 250 |
| **Auxiliary circuit** | | | | | | | | | | |
| • With fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE With short-circuit current $I_k$ = 1 kA according to IEC 60947-5-1 | A | 10 | | | | | | | | |
| • With miniature circuit breakers with C characteristic with short-circuit current $I_k$ = 400 A | A | 10 | | | | | | | | |

1) A clearance of 10 mm is required for side-by-side mounting.

2) Only applies for main conducting paths, otherwise $U_i$ = 690 V; $U_{imp}$ = 6 kV.

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## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

| Type | | | 3RT2617-1A, -1B | 3RT2625-1A, -1B, 3RT2626-1A, -1B, 3RT2627-1A, -1B, 3RT2628-1A, -1B | 3RT2636-1A, 3RT2637-1A | 3RT2645-1A, 3RT2646-1A |
|---|---|---|---|---|---|---|
| Size | | | S00 | S0 | S2 | S3 |
| **Control** | | | | | | |
| **Solenoid coil operating range** | | | | | | |
| • AC operation | 50 Hz | | 0.8 ... 1.1 x $U_s$ | | | |
| | 60 Hz | | 0.85 ... 1.1 x $U_s$ | 0.8 ... 1.1 x $U_s$ | | |
| • DC operation | At 50 °C | | 0.8 ... 1.1 x $U_s$ | | -- | |
| | At 60 °C | | 0.85 ... 1.1 x $U_s$ | 0.8 ... 1.1 x $U_s$ | -- | |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | | |
| • AC operation, 50 Hz, standard version | | | | | | |
| - Closing | | VA | -- | 77 | 190 | 296 |
| - P.f. $\varphi$ | | | -- | 0.82 | 0.72 | 0.61 |
| - Closed | | VA | -- | 9.8 | 16 | 19 |
| - P.f. $\varphi$ | | | -- | 0.25 | 0.37 | 0.38 |
| • AC operation, 50/60 Hz, standard version | | | | | | |
| - Closing | | VA | 49 | 81/79 | 210/188 | 348/296 |
| - P.f. $\varphi$ | | | 0.8 | 0.72/0.74 | 0.69/0.65 | 0.62/0.55 |
| - Closed | | VA | 7.8 | 10.5/8.5 | 17.2/16.5 | 25/18 |
| - P.f. $\varphi$ | | | 0.25 | 0.25/0.28 | 0.36/0.39 | 0.35/0.41 |
| • DC operation | | | | | | |
| - Closing | | W | 4 | 5.9 | -- | |
| - Closed | | W | 4 | 5.9 | -- | |

| Type | | 3RT262.-1NB35 | 3RT262.-1NF35 | 3RT262.-1NP35 | 3RT263.-1N.35 | 3RT264.-1N.35 |
|---|---|---|---|---|---|---|
| Size | | S0 | | | S2 | S3 |
| **Control** | | | | | | |
| **Solenoid coil operating range** | | | | | | |
| • AC/DC operation (50/60 Hz AC or DC) | | 0.7 ... 1.3 x $U_s$ | | | 0.8 ... 1.1 x $U_s$ | |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | | |
| • AC operation, 50/60 Hz, standard version | | | | | | |
| - Closing | VA | 6.6/6.7 | 11.9/12.0 | 12.7/14.7 | 110 | 163 |
| - P.f. $\varphi$ | | 0.98/0.98 | | | 0.95 | -- |
| - Closed | VA | 1.9/2.0 | 1.6/1.8 | 3.9/4.3 | 2.5 | 3.1 |
| - P.f. $\varphi$ | | 0.86/0.82 | 0.79/0.74 | 0.51/0.56 | 0.95 | -- |
| • DC operation | | | | | | |
| - Closing | W | 5.9 | 10.2 | 14.3 | 70 | 76 |
| - Closed | W | 1.4 | 1.3 | 1.9 | 1.5 | 1.8 |
| **Maximum permissible residual current of the electronics** (with 0 signal) | | | | | | |
| • AC operation (230 V/$U_s$) | mA | 7 | | | < 20 | |
| • DC operation (24 V/$U_s$) | mA | 16 | | | < 20 | |

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## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

| Type | | | 3RT2617 | 3RT2625 | 3RT2626 | 3RT2627 | 3RT2628 | 3RT2636 | 3RT2637 | 3RT2645 | 3RT2646 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | S00 | S0 | | | | S2 | | S3 | |
| **Auxiliary circuit** | | | | | | | | | | | |
| **Auxiliary contacts** (unassigned) | | | 1 NO + 1 NC, 2 NC | 1 NO + 2 NC | | | | 1 NO + 1 NC, 2 NC | | | |
| **Further auxiliary switches, laterally mountable** | | | -- | | | | | No more than one lateral auxiliary switch can be mounted. | | | |
| Technical specifications including CSA and UL rated data of the auxiliary contacts, see "3RT20 contactors", page 3/25 onwards. | | | | | | | | | | | |
| **Rated data of the main contacts** | | | | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | | | | |
| **Utilization category AC-6b Switching of AC capacitors** | | | | | | | | | | | |
| • Rated operational current $I_e$ at AC-6b | | | | | | | | | | | |
| - Up to 690 V at ambient temperature | 40 °C | A | 18.9 | 25.3 | 30.2 | 37.8 | 50 | 75.8 | 113.4 | 113 | 151 |
| | 60 °C | A | 18 | 24 | 29 | 36 | 47.6 | 72.2 | 108 | | 144 |
| - Up to 1 000 V at ambient temperature | 60 °C | A | -- | | | | | | | 54 | 68 |
| • Rated operational reactive power at rated operational voltage | 230 V, 50/60 Hz | kvar | 7.2 | 9.6 | 11.5 | 14 | 19 | 29 | 43 | | 57 |
| | **400 V, 50/60 Hz** | **kvar** | **12.5** | **16.7** | **20** | **25** | **33** | **50** | **75** | | **100** |
| | 500 V, 50/60 Hz | kvar | 15 | 21 | 25 | 31 | 41 | 63 | 94 | | 125 |
| | 690 V, 50/60 Hz | kvar | 21 | 29 | 34 | 43 | 57 | 86 | 129 | | 172 |
| | 1 000 V, 50/60 Hz | kvar | -- | | | | | | | 94 | 125 |
| • Minimum cross-section in the main circuit for max. AC-6b rated value | | | See<br>• Product data sheets of the relevant capacitor contactors and capacitors<br>• Operating instructions and manuals, https://support.industry.siemens.com/cs/ww/en/ps/16171/man | | | | | | | | |
| **cULus and cULus rated data** | | | | | | | | | | | |
| **Rated insulation voltage** | | V AC | 600 | | | | | | | | |
| **Operational reactive power at AC-6b, 3-phase,** at operational voltage | 110 ... 120 V | kvar | 3.4 | 4.6 | 5.5 | 6.3 | 8.3 | 14 | 19 | 20 | 25 |
| | 200 ... 208 V | kvar | 6.2 | 8.3 | 10 | 11 | 15 | 25 | 34 | 37 | 45 |
| | 220 ... 230 V | kvar | 6.9 | 9.2 | 11 | 13 | 17 | 27 | 38 | 41 | 50 |
| | 460 ... 480 V | kvar | 14 | 18 | 22 | 25 | 33 | 55 | 75 | 82 | 100 |
| | 575 ... 600 V | kvar | 17 | 23 | 27 | 31 | 41 | 69 | 94 | 103 | 125 |
| **Short-circuit protection** | At 600 V | kA | 5 | | | | | 10 | | | |
| **Fuse for main circuit** | Class RK5 | A | 40 | 80 | | | 100 | 250 | | | |

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## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

| Type | | 3RT2617 | 3RT2625, 3RT2626, 3RT2627 | 3RT2628 | 3RT2636 | 3RT2637 | 3RT2645, 3RT2646 |
|---|---|---|---|---|---|---|---|
| Size | | S00 | S0 | | S2 | | S3 |
| **Conductor cross-sections** | | | | | | | |
| **Main conductors** (1 or 2 conductors can be connected) | | **Screw terminals** | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1]; max. 2 x 4 | 2 x (1 ... 2.5)[1]; 2 x (2.5 ... 10)[1] | | 2 x (2.5 ... 35); 1 x (2.5 ... 50) | | 2 x (10 ... 70); 1 x (10 ... 70) |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] | 2 x (1 ... 2.5)[1]; 2 x (2.5 ... 6)[1]; 1 x 10 | 1 x (2.5 ... 16) | 2 x (1 ... 25); 1 x (1 ... 35) | -- | 2 x (10 ... 50); 1 x (10 ... 50) |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1]; 2 x (18 ... 14)[1]; 2 x 12 | 2 x (16 ... 12)[1]; 2 x (14 ... 8)[1] | 1 x (10 ... 4) | 2 x (18 ... 2); 1 x (18 ... 0) | | 2 x (8 ... 3/0); 1 x (8 ... 3/0) |
| • Terminal screw | | M3 (for Pozidriv size 2; ∅ 5 ... 6 mm) | M4 (for Pozidriv size 2; ∅ 5 ... 6 mm) | M8 | M6 (for Pozidriv size 2; ∅ 5 ... 6 mm) | | M8 (hexagon socket, A/F 4) |
| • Tightening torque | Nm | 0.8 ... 1.2 | 2 ... 2.5 | 3 ... 4 | 3 ... 4.5 | | 4.5 ... 6 |
| | lb.in | 7 ... 10.3 | 18 ... 22 | 27 ... 36 | 27 ... 40 | | 40 ... 53 |
| **Auxiliary conductors** (1 or 2 conductors can be connected) | | | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1]; max. 2 x 4 | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] | | | | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1]; 2 x (18 ... 14)[1]; 2 x 12 | | | | | |
| • Terminal screw | | M3 (for Pozidriv size 2; ∅ 5 ... 6 mm) | | | | | |
| • Tightening torque | Nm | 0.8 ... 1.2 | | | | | |
| | lb.in | 7 ... 10.3 | | | | | |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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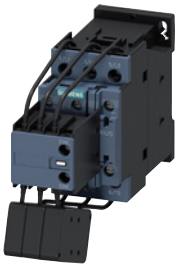
## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

### Selection and ordering data

***AC operation***

Main, auxiliary and control conductors: Screw terminals

3RT2617-1A.05



3RT262.-1A.05

3RT2628-1A.05
with infeed terminal

| **Utilization category AC-6b**<br>Switching AC capacitors<br>at an ambient temperature of 60 °C | | | | Auxiliary contacts, unassigned | | Rated control supply voltage $U_s$ | | **Screw terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Version | | 50 Hz AC | 50/60 Hz AC | | | | |
| Capacitor rating at operational voltage 50/60 Hz | | | | | | | | Article No. Price per PU | | | |
| at 230 V | **at 400 V** | at 500 V | at 690 V | | | | | | | | |
| kvar | **kvar** | kvar | kvar | NO | NC | V | V | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | | |
| 7.2 | **12.5** | 15 | 21 | 1 | 1 | -- | 24 | **3RT2617-1AB03** | 1 | 1 unit | 41B |
| | | | | | | -- | 110 | **3RT2617-1AF03** | 1 | 1 unit | 41B |
| | | | | | | -- | 230 | **3RT2617-1AP03** | 1 | 1 unit | 41B |
| 7.2 | **12.5** | 15 | 21 | 0 | 2 | -- | 24 | **3RT2617-1AB05** | 1 | 1 unit | 41B |
| | | | | | | -- | 110 | **3RT2617-1AF05** | 1 | 1 unit | 41B |
| | | | | | | -- | 230 | **3RT2617-1AP05** | 1 | 1 unit | 41B |
| ***Size S0*** | | | | | | | | | | | |
| 9.6 | **16.7** | 21 | 29 | 1 | 2 | 24 | -- | **3RT2625-1AB05** | 1 | 1 unit | 41B |
| | | | | | | 110 | -- | **3RT2625-1AF05** | 1 | 1 unit | 41B |
| | | | | | | 230 | -- | **3RT2625-1AP05** | 1 | 1 unit | 41B |
| 11.5 | **20** | 25 | 34 | 1 | 2 | 24 | -- | **3RT2626-1AB05** | 1 | 1 unit | 41B |
| | | | | | | 110 | -- | **3RT2626-1AF05** | 1 | 1 unit | 41B |
| | | | | | | 230 | -- | **3RT2626-1AP05** | 1 | 1 unit | 41B |
| 14 | **25** | 31 | 43 | 1 | 2 | 24 | -- | **3RT2627-1AB05** | 1 | 1 unit | 41B |
| | | | | | | 110 | -- | **3RT2627-1AF05** | 1 | 1 unit | 41B |
| | | | | | | 230 | -- | **3RT2627-1AP05** | 1 | 1 unit | 41B |
| 19 | **33** | 41 | 57 | 1 | 2 | 24 | -- | **3RT2628-1AB05** | 1 | 1 unit | 41B |
| | | | | | | 110 | -- | **3RT2628-1AF05** | 1 | 1 unit | 41B |
| | | | | | | 230 | -- | **3RT2628-1AP05** | 1 | 1 unit | 41B |

Other voltages according to page 4/52 on request.
Accessories and spare parts, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***AC operation***

Main, auxiliary and control conductors: Screw terminals

3RT263.-1A.05

3RT264.-1A.05

| **Utilization category AC-6b**<br>Switching AC capacitors<br>at an ambient temperature of 60 °C | | | | Auxiliary contacts, unassigned<br>Version | | Rated control supply voltage $U_s$<br>50 Hz AC | **Screw terminals** | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor rating at operational voltage 50/60 Hz | | | | | | | Article No. | Price per PU | | | |
| at 230 V | **at 400 V** | at 500 V | at 690 V | | | | | | | | |
| kvar | **kvar** | kvar | kvar | NO | NC | V | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | |
| ***Size S2*** | | | | | | | | | | | |
| 29 | **50** | 63 | 86 | 1 | 1 | 24 | **3RT2636-1AB03** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2636-1AF03** | | 1 | 1 unit | 41B |
| | | | | | | 230 | **3RT2636-1AP03** | | 1 | 1 unit | 41B |
| 29 | **50** | 63 | 86 | 0 | 2 | 24 | **3RT2636-1AB05** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2636-1AF05** | | 1 | 1 unit | 41B |
| | | | | | | 230 | **3RT2636-1AP05** | | 1 | 1 unit | 41B |
| 43 | **75** | 94 | 129 | 1 | 1 | 24 | **3RT2637-1AB03** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2637-1AF03** | | 1 | 1 unit | 41B |
| | | | | | | 230 | **3RT2637-1AP03** | | 1 | 1 unit | 41B |
| 43 | **75** | 94 | 129 | 0 | 2 | 24 | **3RT2637-1AB05** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2637-1AF05** | | 1 | 1 unit | 41B |
| | | | | | | 230 | **3RT2637-1AP05** | | 1 | 1 unit | 41B |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | | | |
| ***Size S3*** | | | | | | | | | | | |
| 43 | **75** | 94 | 129 | 1 | 1 | 24 | **3RT2645-1AB03** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2645-1AF03** | | 1 | 1 unit | 41B |
| | | | | | | 230 | **3RT2645-1AP03** | | 1 | 1 unit | 41B |
| 43 | **75** | 94 | 129 | 0 | 2 | 24 | **3RT2645-1AB05** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2645-1AF05** | | 1 | 1 unit | 41B |
| | | | | | | 230 | **3RT2645-1AP05** | | 1 | 1 unit | 41B |
| 57 | **100** | 125 | 172 | 1 | 1 | 24 | **3RT2646-1AB03** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2646-1AF03** | | 1 | 1 unit | 41B |
| | | | | | | 230 | **3RT2646-1AP03** | | 1 | 1 unit | 41B |
| 57 | **100** | 125 | 172 | 0 | 2 | 24 | **3RT2646-1AB05** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2646-1AF05** | | 1 | 1 unit | 41B |
| | | | | | | 230 | **3RT2646-1AP05** | | 1 | 1 unit | 41B |

Other voltages according to page 4/52 on request.
Accessories, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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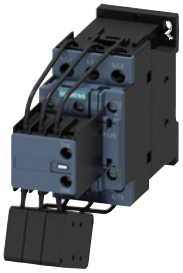
## SIRIUS 3RT26 contactors for capacitive loads (AC-6b), 3-pole

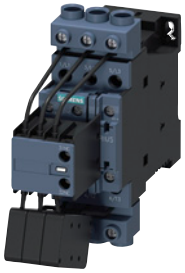
***DC operation*** ⎓

Main, auxiliary and control conductors: Screw terminals

3RT2617-1B.45



3RT262.-1B.45



3RT2628-1B.45
with infeed terminal

| **Utilization category AC-6b**<br>Switching AC capacitors<br>at an ambient temperature of 60 °C | | | | Auxiliary contacts, unassigned | | Rated control supply voltage $U_s$ | **Screw terminals** | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Version | | DC | | | | | |
| Capacitor rating at operational voltage 50/60 Hz | | | | | | | Article No. | Price per PU | | | |
| at 230 V | **at 400 V** | at 500 V | at 690 V | | | | | | | | |
| kvar | **kvar** | kvar | kvar | NO | NC | V | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | | |
| 7.2 | **12.5** | 15 | 21 | 1 | 1 | 24 | **3RT2617-1BB43** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2617-1BF43** | | 1 | 1 unit | 41B |
| 7.2 | **12.5** | 15 | 21 | 0 | 2 | 24 | **3RT2617-1BB45** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2617-1BF45** | | 1 | 1 unit | 41B |
| ***Size S0*** | | | | | | | | | | | |
| 9.6 | **16.7** | 21 | 29 | 1 | 2 | 24 | **3RT2625-1BB45** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2625-1BF45** | | 1 | 1 unit | 41B |
| 11.5 | **20** | 25 | 34 | 1 | 2 | 24 | **3RT2626-1BB45** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2626-1BF45** | | 1 | 1 unit | 41B |
| 14 | **25** | 31 | 43 | 1 | 2 | 24 | **3RT2627-1BB45** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2627-1BF45** | | 1 | 1 unit | 41B |
| 19 | **33** | 41 | 57 | 1 | 2 | 24 | **3RT2628-1BB45** | | 1 | 1 unit | 41B |
| | | | | | | 110 | **3RT2628-1BF45** | | 1 | 1 unit | 41B |

Other voltages according to page 4/52 on request.
Accessories, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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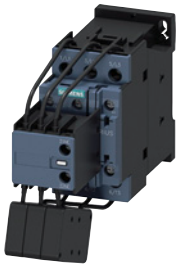
***AC/DC operation***

Main, auxiliary and control conductors: Screw terminals



3RT262.-1N.35

3RT2628-1N.35
with infeed terminal

3RT263.-1N.35

3RT264.-1N.35

| **Utilization category AC-6b**<br>Switching AC capacitors<br>at an ambient temperature of 60 °C | | | | Auxiliary contacts, unassigned | | Rated control supply voltage $U_s$ | **Screw terminals** | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Version | | 50/60 Hz AC or DC | | | | | |
| Capacitor rating at operational voltage 50/60 Hz | | | | | | | Article No. | Price per PU | | | |
| at 230 V | **at 400 V** | at 500 V | at 690 V | | | | | | | | |
| kvar | **kvar** | kvar | kvar | NO | NC | V | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | |
| ***Size S0*** | | | | | | | | | | | |
| 9.6 | **16.7** | 21 | 29 | 1 | 2 | 21 ... 28 | **3RT2625-1NB35** | | 1 | 1 unit | 41B |
| | | | | | | 95 ... 130 | **3RT2625-1NF35** | | 1 | 1 unit | 41B |
| | | | | | | 200 ... 280 | **3RT2625-1NP35** | | 1 | 1 unit | 41B |
| 11.5 | **20** | 25 | 34 | 1 | 2 | 21 ... 28 | **3RT2626-1NB35** | | 1 | 1 unit | 41B |
| | | | | | | 95 ... 130 | **3RT2626-1NF35** | | 1 | 1 unit | 41B |
| | | | | | | 200 ... 280 | **3RT2626-1NP35** | | 1 | 1 unit | 41B |
| 14 | **25** | 31 | 43 | 1 | 2 | 21 ... 28 | **3RT2627-1NB35** | | 1 | 1 unit | 41B |
| | | | | | | 95 ... 130 | **3RT2627-1NF35** | | 1 | 1 unit | 41B |
| | | | | | | 200 ... 280 | **3RT2627-1NP35** | | 1 | 1 unit | 41B |
| 19 | **33** | 41 | 57 | 1 | 2 | 21 ... 28 | **3RT2628-1NB35** | | 1 | 1 unit | 41B |
| | | | | | | 95 ... 130 | **3RT2628-1NF35** | | 1 | 1 unit | 41B |
| | | | | | | 200 ... 280 | **3RT2628-1NP35** | | 1 | 1 unit | 41B |
| ***Size S2*** | | | | | | | | | | | |
| 29 | **50** | 63 | 86 | 0 | 2 | 20 ... 33 | **3RT2636-1NB35** | | 1 | 1 unit | 41B |
| | | | | | | 83 ... 155 | **3RT2636-1NF35** | | 1 | 1 unit | 41B |
| | | | | | | 175 ... 280 | **3RT2636-1NP35** | | 1 | 1 unit | 41B |
| 43 | **75** | 94 | 129 | 0 | 2 | 20 ... 33 | **3RT2637-1NB35** | | 1 | 1 unit | 41B |
| | | | | | | 83 ... 155 | **3RT2637-1NF35** | | 1 | 1 unit | 41B |
| | | | | | | 175 ... 280 | **3RT2637-1NP35** | | 1 | 1 unit | 41B |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | | | |
| ***Size S3*** | | | | | | | | | | | |
| 43 | **75** | 94 | 129 | 0 | 2 | 20 ... 33 | **3RT2645-1NB35** | | 1 | 1 unit | 41B |
| | | | | | | 83 ... 155 | **3RT2645-1NF35** | | 1 | 1 unit | 41B |
| | | | | | | 175 ... 280 | **3RT2645-1NP35** | | 1 | 1 unit | 41B |
| 57 | **100** | 125 | 172 | 0 | 2 | 20 ... 33 | **3RT2646-1NB35** | | 1 | 1 unit | 41B |
| | | | | | | 83 ... 155 | **3RT2646-1NF35** | | 1 | 1 unit | 41B |
| | | | | | | 175 ... 280 | **3RT2646-1NP35** | | 1 | 1 unit | 41B |

Other voltages according to page 4/52 on request.

Accessories, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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4

## Options

***Rated control supply voltages for 3RT2 contactors, possible on request (change of the 10th and 11th digits of the article number)***

Delivery time on request

| Rated control supply voltage $U_s$ | Contactor type | 3RT231, 3RT251 | 3RT232, 3RT252 | 3RT233, 3RT253 | 3RT234, 3RT244, 3RT254 | 3RT2617, 3RT262, 3RT263, 3RT264 |
|---|---|---|---|---|---|---|
| | Size | S00 | S0 | S2 | S3 | S00 to S3 |
| **Sizes S00 to S3** | | | | | | |
| ***AC operation***[1] | | | | | | |
| **Solenoid coils for 50 Hz** (exception: Size S00: 50 and 60 Hz[2]) | | | | | | |
| 24 V AC | | B0 | B0 | B0 | B0 | B0 |
| 42 V AC | | D0 | D0 | D0 | D0 | -- |
| 48 V AC | | H0 | -- | -- | H0 | -- |
| 110 V AC | | F0 | F0 | F0 | F0 | F0 |
| 230 V AC | | P0 | P0 | P0 | P0 | P0 |
| 240 V AC | | -- | -- | U0 | U0 | -- |
| 400 V AC | | V0 | V0 | V0 | V0 | -- |
| **Solenoid coils for 50 and 60 Hz[2]** | | | | | | |
| 24 V AC | | B0 | C2 | C2 | C2 | C2 |
| 42 V AC | | D0 | D2 | D2 | D2 | -- |
| 48 V AC | | H0 | H2 | H2 | H2 | -- |
| 110 V AC | | F0 | G2 | G2 | G2 | -- |
| 220 V AC | | N2 | N2 | N2 | N2 | N2 |
| 230 V AC | | P0 | L2 | L2 | L2 | L2 |
| **Solenoid coils (for USA and Canada[3])** | | | | | | |
| **50 Hz** | **60 Hz** | | | | | |
| 110 V AC | 120 V AC | K6 | K6 | K6 | K6 | -- |
| 220 V AC | 240 V AC | P6 | P6 | P6 | P6 | -- |
| **Solenoid coils (for Japan)** | | | | | | |
| **50/60 Hz[4]** | **60 Hz[5]** | | | | | |
| 100 V AC | 110 V AC | G6 | G6 | G6 | G6 | G6 |
| 200 V AC | 220 V AC | N6 | N6 | N6 | N6 | N6 |
| 400 V AC | 440 V AC | R6 | R6 | R6 | R6 | R6 |
| ***DC operation***[1] | | | | | | |
| 12 V DC | | A4 | A4 | -- | -- | -- |
| 24 V DC | | B4 | B4 | -- | -- | B4 |
| 42 V DC | | D4 | D4 | -- | -- | -- |
| 48 V DC | | W4 | W4 | -- | -- | -- |
| 60 V DC | | -- | -- | -- | -- | -- |
| 110 V DC | | F4 | F4 | -- | -- | F4 |
| 125 V DC | | G4 | G4 | -- | -- | -- |
| 220 V DC | | M4 | M4 | -- | -- | -- |
| 230 V DC | | P4 | -- | -- | -- | -- |

***Examples***

| | | |
|---|---|---|
| **AC operation** | 3RT2325-1A**P0**0 | Contactor with screw terminals; with solenoid coil for 50 Hz for rated control supply voltage 230 V AC |
| | 3RT2325-1A**G2**0 | Contactor with screw terminals; with solenoid coil for 50/60 Hz for rated control supply voltage 110 V AC |
| **DC operation** | 3RT2526-2B**B4**0 | Contactor with spring-loaded terminals; for rated control supply voltage of 24 V DC |
| | 3RT2526-2B**G4**0 | Contactor with spring-loaded terminals; for rated control supply voltage 125 V DC |

1) For deviating coil voltages and operating ranges of sizes S00 and S0, a SITOP 24 V DC power supply with wide-range input can be used for the coil control, see page 15/1 and Catalog KT 10.1.

2) Coil operating range
- at 50 Hz: 0.8 to 1.1 x $U_s$,
- at 60 Hz: 0.85 to 1.1 x $U_s$.

3) Coil operating range
- Size S00:
  at 50 Hz: 0.85 to 1.1 x $U_s$,
  at 60 Hz: 0.8 to 1.1 x $U_s$,
- Sizes S0 to S3: at 50 Hz and 60 Hz: 0.8 to 1.1 x $U_s$.

4) Coil operating range
- Size S00:
  at 50/60 Hz: 0.85 to 1.1 x $U_s$,
- Sizes S0 to S3:
  at 50 Hz: 08 to 1.1 x $U_s$,
  at 60 Hz: 0.85 to 1.1 x $U_s$.

5) Coil operating range at 60 Hz: 0.8 to 1.1 x $U_s$.

| Rated control supply voltage | Contactor type | 3RT2.2.-.N | Rated control supply voltage | Contactor type | 3RT2.3.-.N | 3RT2.4.-.N |
|---|---|---|---|---|---|---|
| $U_{s\,min}$ to $U_{s\,max}$[1] | Size | S0 | $U_{s\,min}$ to $U_{s\,max}$[1] | Size | S2 | S3 |
| **Sizes S0 to S3** | | | | | | |
| ***AC/DC operation (50/60 Hz AC or DC)*** | | | | | | |
| 21 ... 28 V AC/DC | | B3 | 20 ... 33 V AC/DC | | B3 | B3 |
| 95 ... 130 V AC/DC | | F3 | 48 ... 80 V AC/DC | | E3 | E3 |
| 200 ... 280 V AC/DC | | P3 | 83 ... 155 V AC/DC | | F3 | F3 |
| | | | 175 ... 280 V AC/DC | | P3 | P3 |

1) Coil operating range: 0.8 x $U_{s\,min}$ to 1.1 x $U_{s\,max}$.

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***Rated control supply voltages for 3RT14 contactors, possible on request (change of the 10th and 11th digits of the article number)***

Delivery time on request

| Rated control supply voltage | **Contactor type** | **3RT145.-.A, 3RT146.-.A, 3RT147.-.A** | Rated control supply voltage | **Contactor type** | **3RT145.-.N, 3RT146.-.N, 3RT147.-.N** | **3RT145.-.P, 3RT145.-.S, 3RT146.-.P, 3RT146.-.S, 3RT147.-.P, 3RT147.-.S** |
|---|---|---|---|---|---|---|
| $U_{s\,min}$ to $U_{s\,max}$ | **Sizes** | **S6 to S12** | $U_{s\,min}$ to $U_{s\,max}$ | **Sizes** | **S6 to S12** | |
| **Sizes S6 to S12** | | | | | | |
| ***AC/DC operation (50/60 Hz AC or DC) and operating range 0.8 x $U_{s\,min}$ to 1.1 x $U_{s\,max}$*** | | | | | | |
| **Standard operating mechanism** | | | **Solid-state operating mechanism** | | | |
| 23 ... 26 V AC/DC | | B3 | 21 ... 27.3 V AC/DC | | B3 | -- |
| 42 ... 48 V AC/DC | | D3 | 96 ... 127 V AC/DC | | F3 | F3 |
| 110 ... 127 V AC/DC | | F3 | 200 ... 277 V AC/DC | | P3 | P3 |
| 200 ... 220 V AC/DC | | M3 | | | | |
| 220 ... 240 V AC/DC | | P3 | | | | |
| 240 ... 277 V AC/DC | | U3 | | | | |
| 380 ... 420 V AC/DC | | V3 | | | | |
| 440 ... 480 V AC/DC | | R3 | | | | |
| 500 ... 550 V AC/DC | | S3 | | | | |
| 575 ... 600 V AC/DC | | T3 | | | | |

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## SIRIUS 3RT contactors with extended operating range, 3-pole



### Overview

***Standards***

IEC 60947-4-1, IEC 60077-2, EN 50155

***Performance range***

Sizes S00 to S3

- 3RT20 contactors for motor loads (AC-3 and AC-3e) up to 110 A/55 kW

Sizes S6 to S12

- 3RT10 contactors for motor loads (AC-3 and AC-3e) from 55 kW to 500 A/250 kW
- 3RT14 contactors for weak or non-inductive loads (AC-1) up to 690 A

### Application

Besides standard approval in compliance with IEC 60947-4-1, the contactors with an extended operating range are also approved in compliance with the relevant parts of IEC 60077-2, thus fulfilling the requirement for use in railway applications.

Thus, their suitability for increased requirements such as an

- extended temperature range compared to the IEC 60947-4-1 product standard or
- extended operating range of the contactor operating mechanisms or also
- increased resistance to mechanical oscillations and vibrations is warranted. The design of the terminals in the spring-loaded connection system also contributes toward vibration resistance.

***Operating range of contactor operating mechanisms***

The contactors with extended operating range and railway approval are available with a solid-state DC operating mechanism in all sizes from S00 to S12.

This operating mechanism version has an operating range from 0.7 to 1.25 x $U_s$ in the temperature range -40 to 70 °C.

As from size S6, the operating mechanisms are equipped with an additional control input that can be operated between 24 DC and 110 V. This function can optionally be switched on or off via a selector switch.

***Protecting connections against short circuit, overload and overvoltage***

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on complete units such as contactors with overload relays or contactors with motor starter protectors as the motor feeder, see Configuration Manual for load feeders.

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage connections or supply voltage connections

First of all, the relevant standards and regulations for configuring control panels and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state operating mechanisms, switch-on power, holding power).

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control panel tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Short-circuit and overload protection of contactors with a digital input

A typical rated current of 20 mA applies to these inputs based on the PLC input types according to IEC 60947-4-1.

The inputs can be protected accordingly (for 3RT1...-.X contactors, marked with IN+/IN-). The supply voltage connections A1 - A2 must be protected based on the load characteristics.

For information on power consumption, see the technical product data sheet.

Protection against overvoltage at the control supply voltage connection

3RT contactors are already equipped with coil damping (varistor).

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more information about influencing the time response using damping, see Equipment Manual.

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***Fitting auxiliary contacts and mounting additional auxiliary switches***

Features in the delivery state

- 3RT20 contactors:
  - 3RT201 contactors:
    An auxiliary contact is integrated in the basic unit.
  - Contactors 3RT202 to 3RT204:
    The basic units contain two integrated auxiliary contacts (1 NO + 1 NC).
- 3RT10 and 3RT14 contactors:
  These contactors are supplied with two laterally mounted auxiliary switches. The fitting of auxiliary switches is possible on the front and on the side.

Expansion possibilities

All basic units (with the exception of coupling contactors in size S00) can be expanded using auxiliary switches; the permissible configuration must be observed.

Detailed information about the fitting of auxiliary switches for 3RT20 contactors, see pages 3/81 to 3/86.

***Ambient temperature***

The permissible ambient temperature for operation of the contactors (across the full operating range of the operating mechanisms) is -40 to +70 °C.

***Side-by-side mounting***

Contactors with conventional operating mechanism

- Sizes S00 and S0:
  Side-by-side mounting is permissible at ambient temperatures up to 60 °C. At > 60 to 70 °C, a clearance of at least 10 mm shall be provided.

Contactors with series resistor

- Size S00:
  Side-by-side mounting is permissible at ambient temperatures up to 70 °C.

Contactors with solid-state operating mechanism (version: 3RT....-.....-0LA2)

- Sizes S00 to S3:
  Side-by-side mounting is permissible at ambient temperatures up to 70 °C.
- Sizes S6 to S12:
  Side-by-side mounting is permissible at ambient temperatures up to 60 °C. At > 60 to 70 °C, a clearance of at least 10 mm shall be provided.

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## SIRIUS 3RT contactors with extended operating range, 3-pole

### Technical specifications

**More information**

Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16177/td
FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16177/faq

Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16177/man
Guide of use for contactors in safety applications, see https://support.industry.siemens.com/cs/ww/en/view/109807687

| Type | | | 3RT2017 | 3RT2017-2XB4.-0LA2 | 2XF4.-0LA2 | 3RT2018-2XB4.-0LA2 | 2XF4.-0LA2 | 3RT202. | 3RT202.-2XB40-0LA2 | 2XF40-0LA2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | S00 | | | | | S0 | | |
| **General data** | | | | | | | | | | |
| **Upright mounting position** | | | | | | | | | | |
| • Contactors with series resistor | | | Special version (on request) | | | | | | | |
| • Contactors with conventional coil | | | Special version (on request) | | | | | | | |
| **Ambient temperature** | | | | | | | | | | |
| • During operation | | °C | -40 ... +70[1] | -40 ... +70 | | | | | | |
| • During storage | | °C | -55 ... +80 | | | | | | | |
| **Control** | | | | | | | | | | |
| **Solenoid coil operating range** | DC | | 0.7 ... 1.25 x $U_s$ | | | | | | | |
| **Power consumption of the solenoid coils** | | | For cold coil and 1.0 x $U_s$ | | | | | | | |
| • Contactors with series resistor | Closing | W | 13 | -- | | | | | | |
| | Closed | W | 4.0 | -- | | | | | | |
| • Contactors with conventional coil | Closing | W | 2.8 | -- | | | | 4.5 | -- | |
| | Closed | W | 2.8 | -- | | | | 4.5 | -- | |
| • Contactors with solid-state operating mechanism | Closing | W | -- | 4.0 | 4.5 | 4.0 | 4.5 | -- | 6.7 | 13.2 |
| | Closed | W | -- | 0.95 | 0.75 | 0.95 | 0.75 | -- | 1.4 | 1.3 |
| **Rated data of the main contacts** | | | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | | | |
| **Minimum cross-section in the main circuit** | | | | | | | | | | |
| • At maximum AC-1 rated value | | $mm^2$ | 4 | | | | | 10 | | |
| • At maximum $I_{th}$ rated value | | $mm^2$ | -- | 4 | | | | -- | 10 | |

[1] 3RT20..-.K contactors without the article number suffix "-0LA2" are coupling contactors that are certified for the -25 to +60 °C standard temperature range. For railway applications, an additional certification approves these contactors with a minimum clearance of 10 mm for the extended temperature range from -40 to +70 °C.

All details and technical specifications not mentioned here are identical to those of the basic units, see page 3/25 onwards.

| Type | | | 3RT2035-3XB40-0LA2 | 3XF40-0LA2 | 3RT2036-3XB40-0LA2 | 3XF40-0LA2 | 3RT2037-3XB40-0LA2 | 3XF40-0LA2 | 3RT2038-3XB40-0LA2 | 3XF40-0LA2 | 3RT204.-3XB40-0LA2 | 3XF40-0LA2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | | | S2 | | | | | | | | S3 | |
| **General data** | | | | | | | | | | | | |
| **Ambient temperature** | | | | | | | | | | | | |
| • During operation | | °C | -40 ... +70 | | | | | | | | | |
| • During storage | | °C | -55 ... +80 | | | | | | | | | |
| **Control** | | | | | | | | | | | | |
| **Solenoid coil operating range** | DC | | 0.7 ... 1.25 x $U_s$ | | | | | | | | | |
| **Power consumption of the solenoid coils** | | | For cold coil and 1.0 x $U_s$ | | | | | | | | | |
| • Contactors with solid-state operating mechanism | Closing | W | 23 | | | | | | | | 76 | 64 |
| | Closed | W | 1 | | | | | | | | 1.8 | 1.0 |
| **Rated data of the main contacts** | | | | | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | | | | | |
| **Minimum cross-section in the main circuit** | | | | | | | | | | | | |
| • At maximum AC-1 rated value | | $mm^2$ | 16 | | 25 | | | | 35 | | 50 | |
| • At maximum $I_{th}$ rated value | | $mm^2$ | 16 | | 25 | | | | 35 | | 50 | |

All details and technical specifications not mentioned here are identical to those of the basic units, see page 3/25 onwards.

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| Type | | 3RT1054-.X.46-0LA2 | 3RT1055-.X.46-0LA2 | 3RT1056-.X.46-0LA2 | 3RT1064-.X.46-0LA2 | 3RT1065-.X.46-0LA2 | 3RT1066-.X.46-0LA2 | 3RT1075-.X.46-0LA2 | 3RT1076-.X.46-0LA2 |
|---|---|---|---|---|---|---|---|---|---|
| Size | | S6 | | | S10 | | | S12 | |
| **General data** | | | | | | | | | |
| **Ambient temperature** | | | | | | | | | |
| • During operation | °C | -40 ... +70 | | | | | | | |
| • During storage | °C | -55 ... +80 | | | | | | | |
| **Control** | | | | | | | | | |
| • Solenoid coil closing for DC | W | 320 | | | 580 | | | 800 | |
| • Solenoid coil closed for DC | W | 2.8 | | | 3.4 | | | 3.6 | |
| • Control version of the switch operating mechanism | | PLC-IN or standard A1 - A2 (can be set) | | | | | | | |
| Actuated via A1/A2 | | | | | | | | | |
| • Rated control supply voltage | V DC | 24, 72 or 110 | | | | | | | |
| • Operating range | | 0.7 ... 1.25 | | | | | | | |
| Actuated via PLC input | | | | | | | | | |
| • Rated voltage | V DC | 24 ... 110 | | | | | | | |
| • Operating range | | 0.7 ... 1.25 | | | | | | | |
| • Consumed current at PLC control input according to IEC 60947-1, maximum | mA | 2 | | | | | | | |
| **Rated data of the main contacts** | | | | | | | | | |
| ***Load rating with AC*** | | | | | | | | | |
| **Minimum cross-section in the main circuit** | | | | | | | | | |
| • At maximum AC-1 rated value | $mm^2$ | 70 | 95 | | 150 | 185 | | 300 | 370 |
| • At maximum $I_{th}$ rated value | $mm^2$ | 70 | 95 | | 150 | 185 | | 300 | 370 |

All details and technical specifications not mentioned here, see https://support.industry.siemens.com/cs/ww/en/ps/16177/td.

| Type | | 3RT1456-.X.46-0LA2 | 3RT1466-.X.46-0LA2 | 3RT1467-.X.46-0LA2 | 3RT1476-.X.46-0LA2 |
|---|---|---|---|---|---|
| Size | | S6 | S10 | | S12 |
| **General data** | | | | | |
| **Ambient temperature** | | | | | |
| • During operation | °C | -40 ... +70 | | | |
| • During storage | °C | -55 ... +80 | | | |
| **Control** | | | | | |
| • Solenoid coil closing for DC | | 320 | 580 | | 800 |
| • Solenoid coil closed for DC | | 2.8 | 3.4 | | 3.6 |
| • Control version of the switch operating mechanism | | PLC-IN or standard A1 - A2 (can be set) | | | |
| Actuated via A1/A2 | | | | | |
| • Rated control supply voltage | V DC | 24, 72 or 110 | | | |
| • Operating range | | 0.7 ... 1.25 | | | |
| Actuated via PLC input | | | | | |
| • Rated voltage | V DC | 24 ... 110 | | | |
| • Operating range | | 0.7 ... 1.25 | | | |
| • Consumed current at PLC control input according to IEC 60947-1, maximum | mA | 2 | | | |
| **Rated data of the main contacts** | | | | | |
| ***Load rating with AC*** | | | | | |
| **Minimum cross-section in the main circuit** | | | | | |
| • At maximum AC-1 rated value | $mm^2$ | 140 | 240 | 300 | 480 |
| • At maximum $I_{th}$ rated value | $mm^2$ | 140 | 240 | | 480 |

All details and technical specifications not mentioned here, see https://support.industry.siemens.com/cs/ww/en/ps/16177/td.

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## SIRIUS 3RT contactors with extended operating range, 3-pole *IE3/IE4 ready* AC-3e

### Selection and ordering data

***DC operation*** ⎓

3RT201.-2K.4.

3RT201.-2K.42-0LA0

| Rated data according to IEC 60947-4-1 AC-3 and AC-3e, $t_u$: 70 °C | | | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | **Spring-loaded terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ up to | Rating of three-phase motors at | | | | Ident. No. | Version | | | Article No. Price per PU | | | |
| 400 V | 230 V | **400 V** | 500 V | 690 V | | NO | NC | | | | | |
| A | kW | **kW** | kW | kW | | | | V DC | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | | | |
| **Coupling contactors with integrated coil circuit** | | | | | | | | | | | | |
| • Suppressor diode integrated at the factory | | | | | | | | | | | | |
| 12 | 3 | **5.5** | 5.5 | 5.5 | **10**[1] | 1 | -- | 24 | **3RT2017-2KB41** | 1 | 1 unit | 41B |
| | | | | | | | | 110 | **3RT2017-2KF41** | 1 | 1 unit | 41B |
| 12 | 3 | **5.5** | 5.5 | 5.5 | **01**[1] | -- | 1 | 24 | **3RT2017-2KB42** | 1 | 1 unit | 41B |
| | | | | | | | | 110 | **3RT2017-2KF42** | 1 | 1 unit | 41B |
| • Varistor integrated at the factory | | | | | | | | | | | | |
| 12 | 3 | **5.5** | 5.5 | 5.5 | **10**[1] | 1 | -- | 24 | **3RT2017-2LB41** | 1 | 1 unit | 41B |
| | | | | | | | | 110 | **3RT2017-2LF41** | 1 | 1 unit | 41B |
| 12 | 3 | **5.5** | 5.5 | 5.5 | **01**[1] | -- | 1 | 24 | **3RT2017-2LB42** | 1 | 1 unit | 41B |
| | | | | | | | | 110 | **3RT2017-2LF42** | 1 | 1 unit | 41B |
| **With plug-on series resistor and integrated coil circuit** | | | | | | | | | | | | |
| • Suppressor diode integrated at the factory | | | | | | | | | | | | |
| 12 | 3 | **5.5** | 5.5 | 5.5 | **--**[2] | -- | 1[3] | 24 | **3RT2017-2KB42-0LA0** | 1 | 1 unit | 41B |
| | | | | | | | | 110 | **3RT2017-2KF42-0LA0** | 1 | 1 unit | 41B |
| 16 | 4 | **7.5** | 10 | 11 | **--**[2] | -- | 1[3] | 24 | **3RT2018-2KB42-0LA0** | 1 | 1 unit | 41B |
| | | | | | | | | 110 | **3RT2018-2KF42-0LA0** | 1 | 1 unit | 41B |
| • Varistor integrated at the factory | | | | | | | | | | | | |
| 12 | 3 | **5.5** | 5.5 | 5.5 | **--**[2] | -- | 1[3] | 24 | **3RT2017-2LB42-0LA0** | 1 | 1 unit | 41B |
| | | | | | | | | 110 | **3RT2017-2LF42-0LA0** | 1 | 1 unit | 41B |
| 16 | 4 | **7.5** | 10 | 11 | **--**[2] | -- | 1[3] | 24 | **3RT2018-2LB42-0LA0** | 1 | 1 unit | 41B |
| | | | | | | | | 110 | **3RT2018-2LF42-0LA0** | 1 | 1 unit | 41B |

1) It is not possible to mount an auxiliary switch. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.

2) One 4-pole auxiliary switch according to EN 50005 can be mounted from -40 to 70 °C; no clearance required.

3) NC contact cannot be used because it is used for switching of the series resistor.

Accessories and spare parts, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**AC-3e** ***IE3/IE4 ready*** **SIRIUS 3RT contactors with extended operating range, 3-pole**

***DC operation*** ⎓

3RT201.-2X.41-0LA2

3RT201.-2X.42-0LA2

3RT202.-2K.40

3RT202.-2X.40-0LA2

| Rated data according to IEC 60077-2 $t_u$: 70 °C | | | | | | Auxiliary contacts | | | Rated control supply voltage $U_s$ | **Spring-loaded terminals** | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conventional thermal current $I_{th}$ up to | Operational current $I_e$ up to | Rating of three-phase motors at | | | | Ident. No. | Version | | | Article No. | Price per PU | | | |
| 690 V | 400 V | 230 V | **400 V** | 500 V | 690 V | | NO | NC | | | | | | |
| A | A | kW | **kW** | kW | kW | | | | V DC | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | | | | | |
| 18 | 12 | 3 | **5.5** | 5.5 | 5.5 | **10** | 1 | -- | 24 ... 34 | **3RT2017-2XB41-0LA2** | | 1 | 1 unit | 41B |
| | | | | | | | | | 72 ... 125 | **3RT2017-2XF41-0LA2** | | 1 | 1 unit | 41B |
| 18 | 12 | 3 | **5.5** | 5.5 | 5.5 | **01** | -- | 1 | 24 ... 34 | **3RT2017-2XB42-0LA2** | | 1 | 1 unit | 41B |
| | | | | | | | | | 72 ... 125 | **3RT2017-2XF42-0LA2** | | 1 | 1 unit | 41B |
| 18 | 16 | 4 | **7.5** | 10 | 11 | **10** | 1 | -- | 24 ... 34 | **3RT2018-2XB41-0LA2** | | 1 | 1 unit | 41B |
| | | | | | | | | | 72 ... 125 | **3RT2018-2XF41-0LA2** | | 1 | 1 unit | 41B |
| 18 | 16 | 4 | **7.5** | 10 | 11 | **01** | -- | 1 | 24 ... 34 | **3RT2018-2XB42-0LA2** | | 1 | 1 unit | 41B |
| | | | | | | | | | 72 ... 125 | **3RT2018-2XF42-0LA2** | | 1 | 1 unit | 41B |
| ***Size S0*** | | | | | | | | | | | | | | |
| **With integrated coil circuit** | | | | | | | | | | | | | | |
| • Coupling contactors with varistor integrated at the factory | | | | | | | | | | | | | | |
| -- | 17 | 4 | **7.5** | 10 | 11 | **11**[1)] | 1 | 1 | 24 | **3RT2025-2KB40** | | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2025-2KF40** | | 1 | 1 unit | 41B |
| -- | 25 | 5.5 | **11** | 11 | 11 | **11**[1)] | 1 | 1 | 24 | **3RT2026-2KB40** | | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2026-2KF40** | | 1 | 1 unit | 41B |
| -- | 32 | 7.5 | **15** | 18.5 | 18.5 | **11**[1)] | 1 | 1 | 24 | **3RT2027-2KB40** | | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2027-2KF40** | | 1 | 1 unit | 41B |
| • Varistor integrated in electronics at the factory | | | | | | | | | | | | | | |
| 30 | 17 | 4 | **7.5** | 10 | 11 | **11** | 1 | 1 | 24 | **3RT2025-2XB40-0LA2** | | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2025-2XF40-0LA2** | | 1 | 1 unit | 41B |
| 30 | 25 | 5.5 | **11** | 11 | 11 | **11** | 1 | 1 | 24 | **3RT2026-2XB40-0LA2** | | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2026-2XF40-0LA2** | | 1 | 1 unit | 41B |
| 36 | 32 | 7.5 | **15** | 18.5 | 18.5 | **11** | 1 | 1 | 24 | **3RT2027-2XB40-0LA2** | | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2027-2XF40-0LA2** | | 1 | 1 unit | 41B |
| 38 | 38 | 7.5 | **18.5** | 18.5 | 18.5 | **11** | 1 | 1 | 24 | **3RT2028-2XB40-0LA2** | | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2028-2XF40-0LA2** | | 1 | 1 unit | 41B |

[1)] It is not possible to mount an auxiliary switch. A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C.

Accessories and spare parts, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT contactors with extended operating range, 3-pole *IE3/IE4* ready AC-3e

***DC operation***

3RT203.-3X.40-0LA2

3RT204.-3X.40-0LA2

| Rated data according to IEC 60077-2 $t_u$: 70 °C | | | | | | | Auxiliary contacts | | Rated control supply voltage $U_s$ | **Spring-loaded terminals** for auxiliary and control circuits | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IEC 60947-4-1 AC-3 and AC-3e $t_u$: 60 °C | | | | | | | | | | | | | |
| Conventional thermal current $I_{th}$ up to | Operational current $I_e$ up to | Rating of three-phase motors at | | | | | Ident. No. | Version | | Article No. / Price per PU | | | |
| 690 V | 400 V | 230 V | **400 V** | 500 V | 690 V | | | | | | | | |
| A | A | kW | **kW** | kW | kW | | NO | NC | V DC | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | | | |
| ***Size S2*** | | | | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | | | | |
| 50 | 40 | 11 | **18.5** | 22 | 22 | **11** | 1 | 1 | 24 | **3RT2035-3XB40-0LA2** | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2035-3XF40-0LA2** | 1 | 1 unit | 41B |
| 55 | 50 | 15 | **22** | 30 | 22 | **11** | 1 | 1 | 24 | **3RT2036-3XB40-0LA2** | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2036-3XF40-0LA2** | 1 | 1 unit | 41B |
| 60 | 65 | 18.5 | **30** | 37 | 37 | **11** | 1 | 1 | 24 | **3RT2037-3XB40-0LA2** | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2037-3XF40-0LA2** | 1 | 1 unit | 41B |
| 75 | 80 | 22 | **37** | 37 | 45 | **11** | 1 | 1 | 24 | **3RT2038-3XB40-0LA2** | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2038-3XF40-0LA2** | 1 | 1 unit | 41B |
| **For screw fixing and snap-on mounting on TH 35-15 and TH 75-15 DIN rails** | | | | | | | | | | | | | |
| ***Size S3*** | | | | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | | | | |
| 90 | 80 | 22 | **37** | 45 | 55 | **11** | 1 | 1 | 24 | **3RT2045-3XB40-0LA2** | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2045-3XF40-0LA2** | 1 | 1 unit | 41B |
| 95 | 95 | 22 | **45** | 55 | 75 | **11** | 1 | 1 | 24 | **3RT2046-3XB40-0LA2** | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2046-3XF40-0LA2** | 1 | 1 unit | 41B |
| 95 | 110 | 30 | **55** | 75 | 75 | **11** | 1 | 1 | 24 | **3RT2047-3XB40-0LA2** | 1 | 1 unit | 41B |
| | | | | | | | | | 110 | **3RT2047-3XF40-0LA2** | 1 | 1 unit | 41B |

Accessories and spare parts, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**AC-3e** ***IE3/IE4* ready** **SIRIUS 3RT contactors with extended operating range, 3-pole**

***DC operation***

- Solid-state operating mechanism with 24 to 110 V DC control signal input
- For screw fixing
- Auxiliary and control conductors: Spring-loaded terminals
- Main conductors: Busbar connections; a connection kit with screws, spring washers and nuts is enclosed.

3RT105.-2X.46-0LA2

3RT106.-2X.46-0LA2

3RT107.-2X.46-0LA2

| Size | Rated data according to IEC 60077-2 $t_u$: 70 °C Conventional thermal current $I_{th}$ up to 690 V | Rated data according to IEC 60947-4-1 AC-3 and AC-3e $t_u$: 60 °C Operational current $I_e$ up to 400 V | Auxiliary contacts, lateral Version NO | Auxiliary contacts, lateral Version NC | Rated control supply voltage $U_s$ | Spring-loaded terminals Article No. | Spring-loaded terminals Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | A | | | V DC | | | | | |
| **Solid-state operating mechanism** | | | | | | | | | | |
| ***With control signal input 24 ... 110 V DC e. g. for control by PLC*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| **S6** | 120 | 115 | 2 | 2 | 24 | **3RT1054-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1054-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1054-2XF46-0LA2** | | 1 | 1 unit | 41B |
| | 140 | 150 | 2 | 2 | 24 | **3RT1055-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1055-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1055-2XF46-0LA2** | | 1 | 1 unit | 41B |
| | 145 | 185 | 2 | 2 | 24 | **3RT1056-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1056-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1056-2XF46-0LA2** | | 1 | 1 unit | 41B |
| **S10** | 215 | 225 | 2 | 2 | 24 | **3RT1064-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1064-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1064-2XF46-0LA2** | | 1 | 1 unit | 41B |
| | 265 | 265 | 2 | 2 | 24 | **3RT1065-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1065-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1065-2XF46-0LA2** | | 1 | 1 unit | 41B |
| | 265 | 300 | 2 | 2 | 24 | **3RT1066-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1066-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1066-2XF46-0LA2** | | 1 | 1 unit | 41B |
| **S12** | 350 | 400 | 2 | 2 | 24 | **3RT1075-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1075-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1075-2XF46-0LA2** | | 1 | 1 unit | 41B |
| | 475 | 500 | 2 | 2 | 24 | **3RT1076-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1076-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1076-2XF46-0LA2** | | 1 | 1 unit | 41B |

Accessories and spare parts, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RT contactors with extended operating range, 3-pole

***DC operation*** ⎓

- Solid-state operating mechanism with 24 to 110 V DC control signal input
- For screw fixing
- Auxiliary and control conductors: Spring-loaded terminals
- Main conductors: Busbar connections; a connection kit with screws, spring washers and nuts is enclosed.

3RT1456-2X.46-0LA2

3RT146.-2X.46-0LA2

3RT1476-2X.46-0LA2

| Size | Rated data according to IEC 60077-2 $t_u$: 70 °C Conventional thermal current $I_{th}$ up to 690 V | Rated data according to IEC 60947-4-1 AC-1 $t_u$: 40 °C Operational current $I_e$ up to 400 V | Auxiliary contacts, lateral Version NO | Auxiliary contacts, lateral Version NC | Rated control supply voltage $U_s$ | Spring-loaded terminals Article No. | Spring-loaded terminals Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | A | | | V DC | | | | | |
| **Solid-state operating mechanism** | | | | | | | | | | |
| ***With control signal input 24 ... 110 V DC e. g. for control by PLC*** | | | | | | | | | | |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | |
| **S6** | 190 | 275 | 2 | 2 | 24 | **3RT1456-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1456-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1456-2XF46-0LA2** | | 1 | 1 unit | 41B |
| **S10** | 330 | 400 | 2 | 2 | 24 | **3RT1466-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1466-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1466-2XF46-0LA2** | | 1 | 1 unit | 41B |
| | 330 | 500 | 2 | 2 | 24 | **3RT1467-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1467-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1467-2XF46-0LA2** | | 1 | 1 unit | 41B |
| **S12** | 520 | 690 | 2 | 2 | 24 | **3RT1476-2XB46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 72 | **3RT1476-2XJ46-0LA2** | | 1 | 1 unit | 41B |
| | | | | | 110 | **3RT1476-2XF46-0LA2** | | 1 | 1 unit | 41B |

Accessories and spare parts, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

### *Standards*

IEC 60947-5-1

### *Ambient temperature*

The permissible ambient temperature for operation of the contactor relays (across the full operating range of the operating mechanisms) is -40 to +70 °C.

Uninterrupted duty at temperatures > +60 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

### *Control and auxiliary circuits*

The solenoid coils of the contactor relays have an extended coil operating range from 0.7 to 1.25 x $U_s$ and are fitted as standard with surge suppressors. The opening delay time is consequently 2 to 5 ms longer than for standard contactors.

## Application

For operation in installations that are subject both to considerable variations in the control voltage and to high ambient temperatures, e. g. railway applications under extreme climatic conditions, rolling mills, etc.

Also for control supply voltages with battery buffering to extend the operating time in the event of battery charge failure.

### *Operating mechanism types*

Contactor relays with conventional coil

These auxiliary contactors have an extended operating range of 0.7 to 1.25 x $U_s$. An additional auxiliary switch is not required.

Contactor relays with series resistor

These auxiliary contactors have an extended operating range of 0.7 to 1.25 x $U_s$.

The DC solenoid system is modified to holding operation by means of a series resistor. This is plugged on in a prewired module.

A 4-pole auxiliary switch can be fitted additionally.

Contactor relays with solid-state operating mechanism

Thanks to the integrated electronics, these auxiliary contactors have an extended operating range of 0.7 to 1.25 x $U_s$.

### *Protecting connections against short circuit, overload and overvoltage*

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage connections or supply voltage connections

First of all, the relevant standards and regulations for configuring control panels and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor relay must be considered (short-time inrush current peaks for solid-state operating mechanisms, switch-on power, holding power).

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the auxiliary contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control panel tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Protection against overvoltage at the control supply voltage connection

- Contactor relays with conventional coil:
  A surge suppressor (suppressor diode) is integrated.
- Contactor relays with series resistor:
  A surge suppressor (a suppressor diode or varistor as preferred) is integrated.
- Contactor relays with solid-state operating mechanism:
  A surge suppressor (varistor) is integrated.

### *Connection methods*

The 3RH2 contactor relays are available with screw terminals.

### *Side-by-side mounting*

Contactor relays with conventional coil

A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 60 °C ≤ 70 °C.

Contactor relays with series resistor

Side-by-side mounting is permissible at ambient temperatures up to 70 °C.

Contactor relays with solid-state operating mechanism

Side-by-side mounting is permissible at ambient temperatures up to 70 °C.

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## SIRIUS 3RH2 contactor relays with extended operating range

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16174/td<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16174/faq | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16174/man |

| Contactor relays | | Type | 3RH21..-2K, -2L | 3RH2122-2XB40-0LA2 | 3RH2122-2XF40-0LA2 |
|---|---|---|---|---|---|
| **General data** | | | | | |
| **Upright mounting position** | | | | | |
| • Contactors with series resistor | | | Special version (on request) | | |
| • Contactors with conventional coil | | | Special version (on request) | | |
| **Ambient temperature** | | | | | |
| • During operation | | °C | -40 ... +70[1)] | | |
| • During storage | | °C | -55 ... +80 | | |
| **Control** | | | | | |
| **Solenoid coil operating range** | DC operation | | 0.7 ... 1.25 x $U_s$ | | |
| **Power consumption of the solenoid coils** | | | For cold coil and 1.0 x $U_s$ | | |
| • Contactors with series resistor | Closing | W | 13 | -- | -- |
| | Closed | W | 4 | -- | -- |
| • Contactors with conventional coil | Closing | W | 2.8 | -- | -- |
| | Closed | W | 2.8 | -- | -- |
| • Contactors with solid-state operating mechanism | Closing | W | -- | 4 | 4.5 |
| | Closed | W | -- | 0.95 | 0.75 |

1) 3RH21..-.K contactor relays without article number suffix "-0LA." are coupling contactor relays that are certified for the temperature range -25 to +60 °C. For railway applications, an additional certification approves these contactors with a minimum clearance of 10 mm for the extended temperature range from -40 to +70 °C.

All details and technical specifications not mentioned here are identical to those of the 3RH2 basic units, see page 5/5 onwards.

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## Selection and ordering data

### *DC operation*

3RH2122-2K.40

3RH2122-2K.40-0LA0

| Rated operational current $I_e$/AC-15/AC-14 $t_u$: 70 °C at | | | | Contacts Ident. No. according to EN 50011 | Version | | Rated control supply voltage $U_s$ | Spring-loaded terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **230 V** | 400 V | 500 V | 690 V | | NO | NC | | Article No. | Price per PU | | | |
| **A** | A | A | A | | | | V DC | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | | |
| ***Size S00*** | | | | | | | | | | | | |
| **With integrated coil circuit** | | | | | | | | | | | | |
| • Suppressor diode integrated at the factory | | | | | | | | | | | | |
| **10** | 3 | 2 | 1 | **22E** | 2 | 2[1] | 24 | **3RH2122-2KB40** | | 1 | 1 unit | 41A |
| | | | | | | | 110 | **3RH2122-2KF40** | | 1 | 1 unit | 41A |
| | | | | **31E** | 3 | 1[1] | 24 | **3RH2131-2KB40** | | 1 | 1 unit | 41A |
| | | | | **40E** | 4 | 0[1] | 24 | **3RH2140-2KB40** | | 1 | 1 unit | 41A |
| • Varistor integrated at the factory | | | | | | | | | | | | |
| **10** | 3 | 2 | 1 | **22E** | 2 | 2[1] | 24 | **3RH2122-2LB40** | | 1 | 1 unit | 41A |
| | | | | | | | 110 | **3RH2122-2LF40** | | 1 | 1 unit | 41A |
| **With plug-on series resistor and integrated coil circuit** | | | | | | | | | | | | |
| • Suppressor diode integrated at the factory | | | | | | | | | | | | |
| **10** | 3 | 2 | 1 | **21X** | 2 | 1[2] | 24 | **3RH2122-2KB40-0LA0** | | 1 | 1 unit | 41A |
| | | | | | | | 110 | **3RH2122-2KF40-0LA0** | | 1 | 1 unit | 41A |
| • Varistor integrated at the factory | | | | | | | | | | | | |
| **10** | 3 | 2 | 1 | **21X** | 2 | 1[2] | 24 | **3RH2122-2LB40-0LA0** | | 1 | 1 unit | 41A |
| | | | | | | | 110 | **3RH2122-2LF40-0LA0** | | 1 | 1 unit | 41A |
| **With integrated coil circuit (varistor integrated in electronics at the factory)** | | | | | | | | | | | | |
| **10** | 3 | 2 | 1 | **22E** | 2 | 2[2] | 24 ... 34 | **3RH2122-2XB40-0LA2** | | 1 | 1 unit | 41A |
| | | | | | | | 72 ... 125 | **3RH2122-2XF40-0LA2** | | 1 | 1 unit | 41A |

[1] It is not possible to mount an auxiliary switch.
[2] 4-pole auxiliary switch according to EN 50005 can be mounted.

Accessories, see page 3/69 onwards.
Other voltages according to page 3/67 on request.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3TH4 contactor relays, 8-pole

### Overview

***Standards***

IEC 60947-5-1

Terminal covers may have to be fitted onto the connecting bars, depending on the configuration with other devices.

***Ambient temperature***

The permissible ambient temperature for operation of the contactors (across the full solenoid coil operating range) is -50 to +70 °C. Uninterrupted duty at temperatures < -25 °C and > +55 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

A clearance of 10 mm is required for side-by-side mounting at ambient temperatures > 55 °C. There is no need to reduce the technical specifications.

### Application

For operation in installations which are subject both to considerable variations in the control voltage and to high ambient temperatures, e.g. in railway applications.

***Control and auxiliary circuits***

The solenoid coils of the contactor relays have an extended coil operating range from 0.7 to 1.25 x $U_s$ and are fitted as standard with varistors to provide protection against overvoltage. The opening delay time is consequently 2 to 5 ms longer than for standard contactors.

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16176/td<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16176/faq | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16176/man |

| Contactor relays | | Type | 3TH42 |
|---|---|---|---|
| **General data** | | | |
| **Permissible ambient temperature** | | | |
| • During operation | | °C | -50 ... +70[1] |
| • During storage | | °C | -55 ... +80 |
| **Control** | | | |
| **Solenoid coil operating range** | | | 0.7 ... 1.25 x $U_s$ |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$)<br>For cold coil: Closing = Closed | | W | 5.2 |
| **Permissible residual current of the electronics** (with 0 signal) | | | |
| • DC operation | | | ≤ 10 mA x (24 V/$U_s$) |
| **Operating times within operating range** | | | |
| Total break time = Opening delay time + Arcing time | | | |
| • DC operation | Closing delay<br>Opening delay time | ms<br>ms | 40 ... 200<br>20 ... 30 |
| • Arcing time | | ms | 10 ... 20 |

1) Side-by-side mounting with 10 mm clearance.

All details and technical specifications not mentioned here are identical to those of the 3TH4 basic units, see page 5/14 onwards.

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## Selection and ordering data

***DC operation*** ⎓

3TH4244-0L..

| Contacts | Rated operational current $I_e$/AC-15/AC-14 | | | | Contacts[1] Ident. No. according to EN 50011 | Version | | Rated control supply voltage $U_s$ | Screw terminals ⏚ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **230 V** | 400 V | 500 V | 690 V | | | | | | | | | |
| | | | | | | ⎓ NO | ⎓ NC | | | | | | |
| Number | **A** | A | A | A | | | | V DC | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | | | |
| ***With integrated coil circuit (varistor integrated at the factory)*** | | | | | | | | | | | | | |
| 8 | **10** | 6 | 4 | 2 | **44E** | 4 | 4 | 24 | **3TH4244-0LB4** | | 1 | 1 unit | 41A |
| | | | | | | | | 110 | **3TH4244-0LF4** | | 1 | 1 unit | 41A |
| 8 | **10** | 6 | 4 | 2 | **53E** | 5 | 3 | 24 | **3TH4253-0LB4** | | 1 | 1 unit | 41A |
| | | | | | | | | 110 | **3TH4253-0LF4** | | 1 | 1 unit | 41A |
| 8 | **10** | 6 | 4 | 2 | **62E** | 6 | 2 | 24 | **3TH4262-0LB4** | | 1 | 1 unit | 41A |
| | | | | | | | | 110 | **3TH4262-0LF4** | | 1 | 1 unit | 41A |

[1] No expansion contacts can be fitted.

Other voltages according to page 5/19 on request.

Accessories, see page 5/20.

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## 3TC contactors for switching DC voltage, 2-pole



### Overview

#### *Standards*

IEC 60947-4-1

#### *Protecting connections against short circuit, overload and overvoltage*

All connections must generally be protected against overload and short circuits using suitable measures. Different constraints must be considered depending on the type of connection:

Short-circuit and overload protection of main connections

For information on the protection of a free-standing contactor, see the technical product data sheet.

For more information on complete units such as contactors with overload relays or contactors with motor starter protectors as the motor feeder, see Configuration Manual for load feeders.

Short-circuit and overload protection of auxiliary connections

For information on the protection of auxiliary contacts, see the technical product data sheet.

Short-circuit and overload protection of control supply voltage connections or supply voltage connections

First of all, the relevant standards and regulations for configuring control panels and the parts and components installed in them must be taken into account, for example for cable dimensioning.

One possible protection for these circuits could be the selection of a suitable power supply, i.e. one with a current-limiting function. In the selection of the source and the connecting cable, the load characteristics of the contactor must be considered (short-time inrush current peaks for solid-state operating mechanisms, switch-on power, holding power).

If there are further switching elements in the circuit, such as the auxiliary contact system of an overload relay that operates the contactor, the short-circuit protection necessary for this must also be considered.

For further recommendations, e.g. the use of miniature circuit breakers or circuit breakers for equipment in control circuits, see Control panel tip – Selecting and dimensioning suitable power supplies quickly and reliably.

Protection against overvoltage at the control supply voltage connection

The 3TC contactors for railway applications are fitted as standard with varistors against overvoltage.

#### *Ambient temperature*

The permissible ambient temperature for operation of the contactors (across the full solenoid coil operating range) is -50 to +70 °C. Uninterrupted duty at temperatures < -25 °C and > +55 °C reduces the mechanical endurance, the current carrying capacity of the conducting paths and the switching frequency.

A clearance of 10 mm is required for side-by-side mounting of size 2 contactors at ambient temperatures > 55 °C. There is no need to reduce the technical specifications.

#### *Series resistor*

The DC solenoid systems of the 3TC contactors must be modified (to holding coil) by means of a series resistor. This series resistor is supplied separately packed with the contactors.

With types 3TC48, the series resistor must be attached onto the right-hand side of the auxiliary switch by means of the enclosed mounting parts and sets of links provided, while in the case of the 3TC44 it must be mounted and wired between the contactor poles. With types 3TC52 and 3TC56, the series resistor must be attached separately next to the contactors.

#### *Fitting auxiliary contacts and mounting additional auxiliary switches*

Features in the delivery state

The 3TC contactors are equipped with two lateral auxiliary switches with four auxiliary contacts. Of those contacts, one NC contact is required if a series resistor is used (2 NO + 1 NC).

Expansion possibilities

Contactors with AC operation can be expanded using auxiliary switches; the permissible configuration must be observed.

#### *Reversing contactors*

With the 3TC52 and 3TC56 contactors, the series resistor must be connected using an additional K2 reversing contactor. This contactor is automatically included in the scope of supply.

### Application

For operation in installations which are subject both to considerable variations in the control voltage and to high ambient temperatures, e.g. in railway applications.

#### *Control and auxiliary circuits*

The solenoid coils of the contactors have an extended coil operating range from 0.7 to 1.25 x $U_s$.

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16180/td | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16180/man |

| Type | | 3TC44 | 3TC48 | 3TC52 | 3TC56 |
|---|---|---|---|---|---|
| Size | | 2 | 4 | 8 | 12 |
| **General data** | | | | | |
| **Ambient temperature** | | | | | |
| • During operation | °C | -40 ... +70 | | | |
| **Control** | | | | | |
| **Solenoid coil operating range** | | 0.7 ... 1.25 x $U_s$ | | | |
| **Power consumption of the solenoid coils** | | For cold coil and 1.0 x $U_s$ | | | |
| • Closing | W | 48 | 26 | 40 | 130 |
| • Closed | W | 13 | 14 | 21 | 59 |

All details and technical specifications not mentioned here are identical to those of the basic units of the 3TC contactors, see page 4/71.

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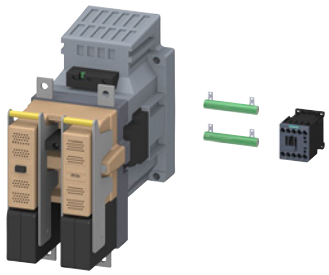
## Selection and ordering data

***DC operation*** ⎓

3TC44: For screw fixing and snap-on mounting on 35 mm DIN rail
3TC48 to 3TC56: For screw fixing

3TC48



3TC56 with reversing contactor

| Size | Utilization category | Rated operational current $I_e$ at 750 V | Rated power of loads at 220 V | 440 V | 600 V | 750 V | Auxiliary contacts[1] Version NO | NC | Rated control supply voltage $U_s$ | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | kW | kW | kW | kW | | | V DC | | | | | |
| **Contactors for switching DC voltage** | | | | | | | | | | | | | | |
| ***With integrated coil circuit (varistor integrated at the factory)*** | | | | | | | | | | | | | | |
| **2** | DC-1 | 32 | 7 | 14 | 19.2 | 24 | 2 | 1[2] | 24 | **3TC4417-0LB4** | | 1 | 1 unit | 41B |
| | DC-3/DC-5 | 7.5 | 5 | 9 | 9 | 4 | | | 110 | **3TC4417-0LF4** | | 1 | 1 unit | 41B |
| ***With laterally mounted coil circuit (varistor mounted externally in additional auxiliary switch enclosure on the contactor)*** | | | | | | | | | | | | | | |
| **4** | DC-1 | 75 | 16.5 | 33 | 45 | 56 | 2 | 1[2] | 24 | **3TC4817-0LB4** | | 1 | 1 unit | 41B |
| | DC-3/DC-5 | 75 | 13 | 27 | 38 | 45 | | | 110 | **3TC4817-0LF4** | | 1 | 1 unit | 41B |
| **8** | DC-1 | 170 | 48 | 97 | 132 | 165 | 2 | 1[2] | 24 | **3TC5217-0LB4** | | 1 | 1 unit | 41B |
| | DC-3/DC-5 | 170 | 41 | 82 | 110 | 110 | | | 110 | **3TC5217-0LF4** | | 1 | 1 unit | 41B |
| **12** | DC-1 | 400 | 88 | 176 | 240 | 300 | 2 | 1[2] | 24 | **3TC5617-0LB4** | | 1 | 1 unit | 41B |
| | DC-3/DC-5 | 400 | 70 | 140 | 200 | 250 | | | 110 | **3TC5617-0LF4** | | 1 | 1 unit | 41B |

[1] No expansion auxiliary contacts can be fitted.
[2] One NC contact used for series resistor.

Other rated control supply voltages according to page 4/78 on request.

## Accessories

Accessories, see basic units of the 3TC contactors, page 4/78 onwards.

***Spare parts for contactors with extended operating range***

| For contactors Size | Type | Remarks | Rated control supply voltage $U_s$ V DC | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Arc chutes** | | | | | | | | |
| 2 | 3TC4417-0L.. | With recess for resistor mounting | -- | **3TY2442-0B** | | 1 | 1 unit | 41B |
| **Solenoid coils** | | | | | | | | |
| 2 | 3TC44 | With series resistor, without varistor | 24 | **3TY6443-0LB4** | | 1 | 1 unit | 41B |
| | | | 110 | **3TY6443-0LF4** | | 1 | 1 unit | 41B |
| 4 | 3TC48 | | 24 | **3TY6483-0LB4** | | 1 | 1 unit | 41B |
| | | | 110 | **3TY6483-0LF4** | | 1 | 1 unit | 41B |

All spare parts not mentioned here are identical to those of the basic units of the 3TC contactors, see page 4/78.

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## 3TC contactors for switching DC voltage, 1- and 2-pole

### Overview

***3TC4 and 3TC5***

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1 (auxiliary switches)

The DC motor ratings given in the tables are applicable to the DC-3 and DC-5 utilization categories with 2-pole switching of the load or with the two conducting paths of the contactor connected in series.

One contactor conducting path can switch full power up to 220 V. For voltages over 220 V, the two conducting paths are to be switched in series, see Rated data of the main contacts, page 4/73.

Surge suppression

Contactors (not for railway applications) supplied without a coil circuit can be retrofitted with RC elements, varistors, diodes or diode assemblies (combination of diode and Zener diode for short break times) for damping switching overvoltages in the coil, see page 4/79 onwards.

Fitting auxiliary contacts and mounting additional auxiliary switches

- Features in the delivery state:
  The 3TC contactors are equipped with two lateral auxiliary switches with four auxiliary contacts. Of those contacts, one NC contact is required if a series resistor is used (2 NO + 1 NC).
- Expansion possibilities:
  Contactors with AC operation can be expanded using auxiliary switches; the permissible configuration must be observed.

***3TC7***

IEC 60947-4-1

The contactors are suitable for switching and controlling DC motors as well as all other DC loads.

The solenoid excitation is configured for a particularly large operating range. It is between 0.7 or 0.8 and 1.2 × $U_s$.

3TC74 contactors can be used at up to 750 V/400 A and 50 Hz in AC-1 operation. For voltages over 750 V, the two conducting paths (3TC74: two contactors) are to be switched in series, see Rated data of the main contacts, page 4/75.

### Application

The contactors are suitable for switching and controlling DC motors as well as all other DC circuits.

A version with a particularly large solenoid coil operating range is available for operation in electrically driven vehicles and in switchgear subject to large fluctuations in actuating voltage (see page 4/69).

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## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16181/td<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16181/faq | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16181/man |

| Type | | | 3TC4 and 3TC7 | 3TC5 |
|---|---|---|---|---|
| **Rated data of the auxiliary contacts** | | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | | V | 690 | |
| **Conventional thermal current $I_{th}$ = rated operational current $I_e$/AC-12** | | A | 10 | 10 |
| **AC load** | | | | |
| **Rated operational current $I_e$/AC-15/AC-14** | | | | |
| • At rated operational voltage $U_e$ | 24 V | A | 10 | 10 |
| | 110 V | A | 10 | 10 |
| | 125 V | A | 10 | 10 |
| | 220 V | A | 6 | 6 |
| | 230 V | A | 5.6 | 5.6 |
| | 380 V | A | 4 | 4 |
| | 400 V | A | 3.6 | 3.6 |
| | 500 V | A | 2.5 | 2.5 |
| | 660 V | A | 2.5 | 2.5 |
| | 690 V | A | -- | -- |
| **DC load** | | | | |
| **Rated operational current $I_e$/DC-12** | | | | |
| • At rated operational voltage $U_e$ | 24 V | A | 10 | 10 |
| | 60 V | A | 10 | 10 |
| | 110 V | A | 3.2 | 8 |
| | 125 V | A | 2.5 | 6 |
| | 220 V | A | 0.9 | 2 |
| | 440 V | A | 0.33 | 0.6 |
| | 600 V | A | 0.22 | 0.4 |
| **Rated operational current $I_e$/DC-13** | | | | |
| • At rated operational voltage $U_e$ | 24 V | A | 10 | 10 |
| | 48 V | A | 5 | 5 |
| | 110 V | A | 1.14 | 2.4 |
| | 125 V | A | 0.98 | 2.1 |
| | 220 V | A | 0.48 | 1.1 |
| | 440 V | A | 0.13 | 0.32 |
| | 600 V | A | 0.07 | 0.21 |

| Type | | 3TC44 to 3TC56 |
|---|---|---|
| **CSA and UL rated data of the auxiliary contacts** | | |
| **Rated voltage, max.** | V AC | 600 |
| **Switching capacity** | | A 600, P 600 |

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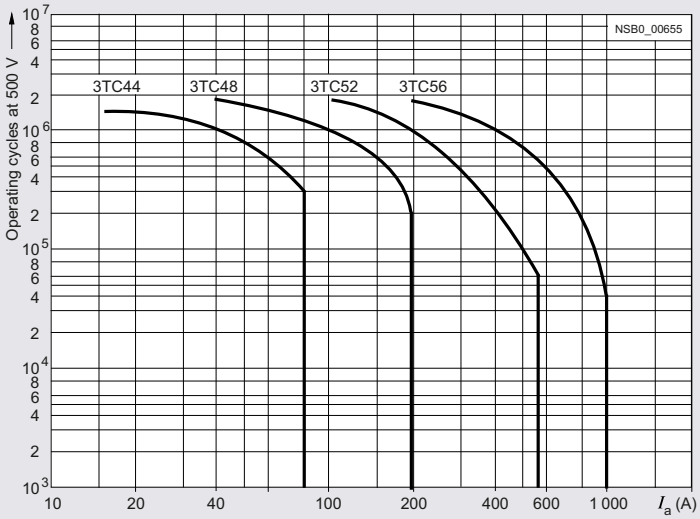
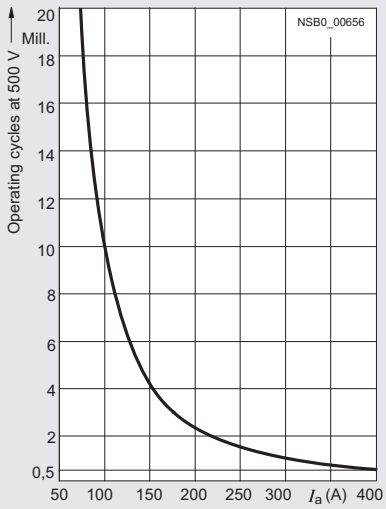
## 3TC contactors for switching DC voltage, 1- and 2-pole

| Type | 3TC44 to 3TC78 |
|---|---|

### Contact endurance of the main contacts

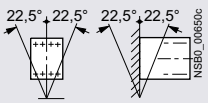



3TC44 to 3TC56 contactors




3TC74 and 3TC78 contactors

Legend for the diagrams:
$I_a$ = Breaking current

| Contactor | Type | 3TC44 | 3TC48 | 3TC52 | 3TC56 |
|---|---|---|---|---|---|
| | Size | 2 | 4 | 8 | 12 |
| **General data** | | | | | |
| **Dimensions (W x H x D)** | | | | | |
| • DC operation | mm | 70 x 85 x 141 | 100 x 183 x 180 | 135 x 238 x 232 | 160 x 279 x 310 |
| • AC operation | mm | 70 x 85 x 100 | 100 x 183 x 154 | 135 x 238 x 200 | 160 x 279 x 251 |
| **Permissible mounting position**<br>The contactors are designed for operation on a vertical mounting surface. | |  | | | |
| **Mechanical endurance** | Operating cycles | 10 million | | | |
| **Electrical endurance** | | See the endurance diagram above | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 800 | | 1 000 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 8 | | | |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | V | Up to 300 | | Up to 660 | |
| **Mirror contacts**[1]<br>A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact. | | Yes, according to IEC 60947-4-1, Annex F | | | |
| **Permissible ambient temperature** | | | | | |
| • During operation | °C | -25 ... +55 | | | |
| • During storage | °C | -50 ... +80 | | | |
| **Short-circuit protection** | | | | | |
| **Main circuit** | | | | | |
| • Type of coordination "1" | | 2 x 3NA3020 (50 A) in series | 2 x 3NA31.. (160 A) in series | 3NE1332-4D (400 A) | 2 x 3NE1330-4D (315 A) parallel |
| • Type of coordination "2" | | 2 x 3NA3020 (50 A) in series | 2 x 3NA31.. (63 A) in series | 3NE1332-4D (400 A) | 2 x 3NE1330-4D (315 A) parallel |
| **Auxiliary circuit**<br>(short-circuit current $I_k \leq 1$ kA) | | | | | |
| • Fuse links, operational class gG:<br>DIAZED, type 5SB; NEOZED, type 5SE | A | 16 | | | |
| • Miniature circuit breaker with C characteristic | A | 10 | | | |

[1] For 3TC44, one NC contact each must be connected in series for the right and left auxiliary switch respectively.

Rated data of the auxiliary contacts, see page 4/71.

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| Type | | | | 3TC44 | 3TC48 | 3TC52 | 3TC56 |
|---|---|---|---|---|---|---|---|
| Size | | | | 2 | 4 | 8 | 12 |
| **Control** | | | | | | | |
| **Solenoid coil operating range** | | | | | | | |
| • DC operation | | | | 0.7 ... 1.25 x $U_s$ | | | |
| • AC operation | | | | 0.8 ... 1.1 x $U_s$ | | | |
| **Power consumption of the solenoid coils** (for cold coil and 1.0 x $U_s$) | | | | | | | |
| • DC operation | Closing = Closed | | W | 10 | 19 | 30 | 86 |
| • AC operation, 50 Hz coil | Closing | | VA/p.f. $\varphi$ | 68/0.86 | 300/0.5 | 640/0.48 | 1 780/0.3 |
| | Closed | | VA/p.f. $\varphi$ | 10/0.29 | 26/0.24 | 46/0.23 | 121/0.22 |
| • AC operation, 60 Hz coil | Closing | | VA/p.f. $\varphi$ | 95/0.79 | 365/0.45 | 730/0.38 | 2 140/0.3 |
| | Closed | | VA/p.f. $\varphi$ | 12/0.3 | 35/0.26 | 56/0.24 | 140/0.29 |
| • AC operation, 50/60 Hz coil | Closing at 50/60 Hz | | VA/p.f. $\varphi$ | 79/73/0.83/0.78 | -- | | |
| | Closed at 50/60 Hz | | VA/p.f. $\varphi$ | 11/9/0.28/0.27 | -- | | |
| **Rated data of the main contacts** | | | | | | | |
| ***Load rating with DC*** | | | | | | | |
| **Utilization category DC-1 (*L/R* ≤ 1 ms)** | | | | | | | |
| • Rated operational currents $I_e$ (at 55 °C) | | Up to $U_e$ 750 V | A | 32 | 75 | 220 | 400 |
| • Minimum conductor cross-section | | | $mm^2$ | 6 | 25 | 95 | 240 |
| • Rated power at $U_e$ (≤ 220 V DC: one conducting path, > 220 V DC: two conducting paths in series) | | At 220 V | kW | 7 | 16.5 | 48 | 88 |
| | | 440 V | kW | 14 | 33 | 97 | 176 |
| | | 600 V | kW | 19.2 | 45 | 132 | 240 |
| | | 750 V | kW | 24 | 56 | 165 | 300 |
| **Utilization category DC-3 and DC-5, shunt-wound and series-wound motors (*L/R* ≤ 15 ms)** | | | | | | | |
| • Rated operational currents $I_e$ (at 55 °C) | | Up to 220 V | A | 32 | 75 | 220 | 400 |
| | | 440 V | A | 29 | 75 | 220 | 400 |
| | | 600 V | A | 21 | 75 | 220 | 400 |
| | | 750 V | A | 7.5 | 75 | 170 | 400 |
| • Rated power at $U_e$ (≤ 220 V DC: one conducting path, > 220 V DC: two conducting paths in series) | | At 110 V | kW | 2.5 | 6.5 | 20 | 35 |
| | | 220 V | kW | 5 | 13 | 41 | 70 |
| | | 440 V | kW | 9 | 27 | 82 | 140 |
| | | 600 V | kW | 9 | 38 | 110 | 200 |
| | | 750 V | kW | 4 | 45 | 110 | 250 |
| **Conductor cross-sections** | | | | | | | |
| **Main conductors** (1 or 2 conductors can be connected) | | | | **Screw terminals** | | | |
| • Solid | | | $mm^2$ | 2 x (2.5 ... 10) | 2 x (6 ... 16) | -- | |
| • Finely stranded with end sleeve | | | $mm^2$ | 2 x (1.5 ... 4) | -- | | |
| • Stranded with cable lug | | | $mm^2$ | 2 x 16 | 2 x 35 | 2 x 120 | 2 x 150 |
| • Pin cable lug according to DIN 46231 | | | $mm^2$ | 2 x (1 ... 6) | -- | | |
| • Busbars | | | mm | -- | 15 x 2.5 | 25 x 4 | 2 x (25 x 3) |
| • Terminal screw | | | | M5 | M6 | M10 | |
| **Auxiliary conductors** (1 or 2 conductors can be connected) | | | | | | | |
| • Solid | | | $mm^2$ | 2 x (1 ... 2.5) | | | |
| • Finely stranded with end sleeve | | | $mm^2$ | 2 x (0.75 ... 1.5) | | | |

Rated data of the auxiliary contacts, see page 4/71.

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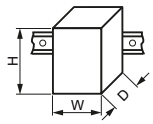
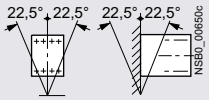
## 3TC contactors for switching DC voltage, 1- and 2-pole

| Type | | | 3TC74 | 3TC78 |
|---|---|---|---|---|
| Design | | | 1-pole contactors | 2-pole contactors |
| **General data** | | | | |
| **Dimensions (W x H x D)**   | | mm | 78 x 352 x 276 | 160 x 366 x 290 |
| **Permissible mounting position**<br>The contactors are designed for operation on a vertical mounting surface. | | |   | |
| **Mechanical endurance** | | Operating cycles | 30 million | |
| **Electrical endurance** | | | See page 4/72 | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | | V | 1 500 | |
| **Rated impulse withstand voltage $U_{imp}$** | | kV | 8 | |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | | V | 630 | |
| **Mirror contacts**[1]<br>A mirror contact is an auxiliary NC contact that cannot be closed simultaneously with an NO main contact. | | | Yes, according to IEC 60947-4-1, Annex F | |
| **Permissible ambient temperature** | | °C | -25 ... +55 | |
| **Short-circuit protection** | | | | |
| **Main circuit** | | | | |
| • Type of coordination "1" | | A | 2 x 3NE1330-4D (315 A) parallel | 2 x 3NE1330-5E (315 A) parallel |
| • Type of coordination "2" | | A | 2 x 3NE1330-4D (315 A) parallel | 2 x 3NE1330-5E (315 A) parallel |
| **Auxiliary circuit**<br>(short-circuit current $I_k \leq 1$ kA) | | | | |
| • Fuse links, operational class gG: DIAZED, type 5SB; NEOZED, type 5SE | | A | 16 | |
| • Miniature circuit breaker with C characteristic | | A | 10 | |
| **Control** | | | | |
| **Solenoid coil operating range** | | | | |
| • DC operation | At $U_c$ = 24 V | | 0.8 ... 1.2 x $U_s$ | |
| | At $U_c$ > 24 V | | 0.7 ... 1.2 x $U_s$ | |
| • AC operation | At $U_c$ = 24 V | | 0.7 ... 1.15 x $U_s$ | |
| | At $U_c$ > 24 V | | 0.7 ... 1.14 x $U_s$ | |
| **Power consumption of the solenoid coils**<br>(for cold coil and 1.0 x $U_s$) | | | | |
| • DC operation | Closing = Closed | W | 46 | 92 |
| • AC operation, 50 Hz | Closing = Closed | VA | 80 | 160 |
| | | P.f. $\varphi$ | 0.95 | |

[1] For 3TC78, one auxiliary NC contact each of the right and left conducting paths must be connected in series.

Rated data of the auxiliary contacts, see page 4/71.

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| Type | | | 3TC74 | 3TC78 |
|---|---|---|---|---|
| Design | | | 1-pole contactors | 2-pole contactors |
| **Rated data of the main contacts** | | | | |
| ***Load rating with DC*** | | | | |
| **Utilization category DC-1 (*L/R* ≤ 1 ms)** | | | | |
| • Rated operational current $I_e$/DC-1 (at 55 °C) | | A | 500 | |
| • Minimum conductor cross-section | | $mm^2$ | 2 x 150 | |
| • Rated power | At 220 V | kW | 110 | |
| (≤ 750 V DC: one conducting path, | 440 V | kW | 220 | |
| > 750 V DC: two conducting paths in series) | 600 V | kW | 300 | |
| | 750 V | kW | 375 | |
| | 1 200 V | kW | -- | 600 |
| | 1 500 V | kW | -- | 750 |
| • Critical currents, without arc extinction | At 440 V | A | ≤ 7 | -- |
| | 600 V | A | ≤ 13 | -- |
| | 750 V | A | ≤ 15 | -- |
| | ≤ 800 V | A | -- | ≤ 7 |
| | 1 200 V | A | -- | ≤ 13 |
| | 1 500 V | A | -- | ≤ 15 |
| **Utilization category DC-3 and DC-5, shunt-wound and series-wound motors (*L/R* ≤ 15 ms)** | | | | |
| • Rated operational current $I_e$ (at 55 °C) | | A | 400 | |
| • Rated power at $U_e$ | At 110 V | kW | 35 | |
| (≤ 750 V DC: one conducting path, | 220 V | kW | 70 | |
| > 750 V DC: two conducting paths in series) | 440 V | kW | 140 | |
| | 600 V | kW | 200 | |
| | 750 V | kW | 250 | |
| | 1 200 V | kW | -- | 400 |
| | 1 500 V | kW | -- | 500 |
| **Permissible rated current for regenerative braking** At 110 ... 600 V | | A | 400 | |
| **Conductor cross-sections** | | | | |
| **Main conductors** (1 or 2 conductors can be connected) | | | **Screw terminals** | |
| • Stranded with cable lug | | $mm^2$ | 2 x ... 150 | |
| • Busbars | | mm | 2 x (30 x 4) | |
| **Auxiliary conductors** (1 or 2 conductors can be connected) | | | | |
| • Solid | | $mm^2$ | 1 ... 2.5 | |
| • Finely stranded with end sleeve | | $mm^2$ | 0.75 ... 1.5 | |

Rated data of the auxiliary contacts, see page 4/71.

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## 3TC contactors for switching DC voltage, 1- and 2-pole

### Selection and ordering data

***DC operation ⎓ or AC operation, 50 Hz ∿***

3TC44

3TC48

| Size | Utilization category[1] | Operational current $I_e$[2] | Ratings of DC motors at 110 V | 220 V | 440 V | 600 V | 750 V | Auxiliary contacts[3] Version NO | NC | Rated control supply voltage $U_s$ | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | kW | kW | kW | kW | kW | | | V | | | | | |
| **3TC44 to 3TC56 2-pole contactors · Operational voltage up to 750 V** | | | | | | | | | | | | | | | |
| ***DC operation*** | | | | | | | | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | | | | | |
| 2 | DC-3, DC-5 | 32 | 2.5 | 5 | 9 | 9 | 4 | 2 | 2 | 24 DC | **3TC4417-0AB4** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 110 DC | **3TC4417-0AF4** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 220 DC | **3TC4417-0AM4** | | 1 | 1 unit | 41B |
| **For screw fixing** | | | | | | | | | | | | | | | |
| 4 | DC-3, DC-5 | 75 | 6.5 | 13 | 27 | 38 | 45 | 2 | 2 | 24 DC | **3TC4817-0AB4** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 110 DC | **3TC4817-0AF4** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 220 DC | **3TC4817-0AM4** | | 1 | 1 unit | 41B |
| 8 | DC-3, DC-5 | 220[4] | 20 | 41 | 82 | 110 | 110 | 2 | 2 | 24 DC | **3TC5217-0AB4** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 110 DC | **3TC5217-0AF4** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 220 DC | **3TC5217-0AM4** | | 1 | 1 unit | 41B |
| 12 | DC-3, DC-5 | 400 | 35 | 70 | 140 | 200 | 250 | 2 | 2 | 24 DC | **3TC5617-0AB4** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 110 DC | **3TC5617-0AF4** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 220 DC | **3TC5617-0AM4** | | 1 | 1 unit | 41B |
| ***AC operation, 50 Hz*** | | | | | | | | | | | | | | | |
| **For screw fixing and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | | | | | |
| 2 | DC-3, DC-5 | 32 | 2.5 | 5 | 9 | 9 | 4 | 2 | 2 | 220/230 AC[5] | **3TC4417-0BP0** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 110/110 AC | **3TC4417-0BF0** | | 1 | 1 unit | 41B |
| **For screw fixing** | | | | | | | | | | | | | | | |
| 4 | DC-3, DC-5 | 75 | 6.5 | 13 | 27 | 38 | 45 | 2 | 2 | 220/230 AC[5] | **3TC4817-0BP0** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 110 AC | **3TC4817-0BF0** | | 1 | 1 unit | 41B |
| 8 | DC-3, DC-5 | 220[4] | 20 | 41 | 82 | 110 | 110 | 2 | 2 | 220/230 AC[5] | **3TC5217-0BP0** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 110 AC | **3TC5217-0BF0** | | 1 | 1 unit | 41B |
| 12 | DC-3, DC-5 | 400 | 35 | 70 | 140 | 200 | 250 | 2 | 2 | 220/230 AC[5] | **3TC5617-0BP0** | | 1 | 1 unit | 41B |
| | | | | | | | | | | 110 AC | **3TC5617-0BF0** | | 1 | 1 unit | 41B |

1) Permissible load for DC-1 utilization category, see detailed technical specifications in the Reference Manual.

2) The following rated operational currents are permitted for reversing duty with 3TC44 to 3TC56 contactors:

| Contactor Type | Rated operational voltage 110 V, 220 V | 440 V |
|---|---|---|
| 3TC44 | 32 A | 7 A |
| 3TC48 | 75 A | 75 A |
| 3TC52 | 170 A | 170 A |
| 3TC56 | 400 A | 400 A |

3) The fitting of auxiliary switches cannot be altered on DC-operated contactors.

4) At > 600 V: $I_e$ = 170 A.

5) Operating range at 220 V AC: 0.85 to 1.15 × $U_s$; lower operating range limit according to IEC 60947.

Other rated control supply voltages according to page 4/78 on request.

Accessories, see page 4/78 onwards.

Spare parts, see page 4/80.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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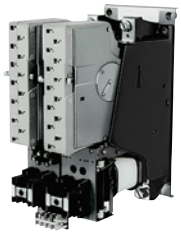
***DC operation ⎓ or AC operation, 50 Hz ∿***

For screw fixing

3TC74



3TC78

| Size | Utilization category[1] | Operational current $I_e$ | Ratings of DC motors at 110 V | 220 V | 440 V | 600 V | 750 V | 1 200 V | 1 500 V | Auxiliary contacts[2] Version NO | NC | Rated control supply voltage $U_s$ | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | kW | kW | kW | kW | kW | kW | kW | NO | NC | V | | | | | |
| **3TC74 1-pole contactors · Operational voltage up to 750 V** | | | | | | | | | | | | | | | | | |
| ***DC operation*** | | | | | | | | | | | | | | | | | |
| 12 | DC-3, DC-5 | 400 | 35 | 70 | 140 | 200 | 250 | -- | -- | 4 | 4 | 24 DC | **3TC7414-0EB** | | 1 | 1 unit | 41B |
| | | | | | | | | | | | | 110 DC | **3TC7414-0EF** | | 1 | 1 unit | 41B |
| ***AC operation, 50 Hz*** | | | | | | | | | | | | | | | | | |
| 12 | DC-3, DC-5 | 400 | 35 | 70 | 140 | 200 | 250 | -- | -- | 4 | 4 | 230/220 AC[3] | **3TC7414-1CM** | | 1 | 1 unit | 41B |
| **3TC78 2-pole contactors · Operational voltage up to 1 500 V** | | | | | | | | | | | | | | | | | |
| ***DC operation*** | | | | | | | | | | | | | | | | | |
| 12 | DC-3, DC-5 | 400 | 35 | 70 | 140 | 200 | 250 | 400 | 500 | 4 | 4 | 24 DC | **3TC7814-0EB** | | 1 | 1 unit | 41B |
| | | | | | | | | | | | | 110 DC | **3TC7814-0EF** | | 1 | 1 unit | 41B |
| ***AC operation, 50 Hz*** | | | | | | | | | | | | | | | | | |
| 12 | DC-3, DC-5 | 400 | 35 | 70 | 140 | 200 | 250 | 400 | 500 | 4 | 4 | 230/220 AC[3] | **3TC7814-1CM** | | 1 | 1 unit | 41B |

[1] Permissible load for DC-1 utilization category, see detailed technical specifications in the Reference Manual.

[2] The fitting of auxiliary switches cannot be altered on DC-operated contactors.

[3] Upper operating range limit at 230 V AC: 1.14 x $U_s$.

Other rated control supply voltages according to page 4/78 on request.

Spare parts, see page 4/80.

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## 3TC contactors for switching DC voltage, 1- and 2-pole

### Options

***Rated control supply voltages, possible on request (change of the 10th and 11th digits of the article number)***

Delivery time on request

| Rated control supply voltage $U_s$ | Contactor type | 3TC44 | 3TC48 | 3TC52/3TC56 | 3TC74/3TC78 |
|---|---|---|---|---|---|
| ***DC operation*** | | | | | |
| 24 V DC | | B4 | B4 | B4 | B |
| 48 V DC | | W4 | W4 | -- | -- |
| 60 V DC | | E4 | E4 | -- | -- |
| 110 V DC | | F4 | F4 | F4 | F |
| 125 V DC | | G4 | G4 | -- | -- |
| 220 V DC | | M4 | M4 | M4 | M |
| 230 V DC | | P4 | P4 | -- | -- |
| ***AC operation*** | | | | | |
| **Solenoid coils for 50 Hz** | | | | | |
| 24 V AC | | B0 | B0 | -- | -- |
| 110 V AC | | F0 | F0 | F0 | -- |
| 230/220 V AC | | P0[1)] | P0[1)] | P0[1)] | M[2)] |
| 240 V AC | | U0 | U0 | -- | -- |
| **Solenoid coils for 50/60 Hz** | | | | | |
| 24 V AC | | C2 | -- | -- | -- |
| 110 V AC | | G2 | -- | -- | -- |
| 120 V AC | | K2 | -- | -- | -- |
| 220 V AC | | N2 | -- | -- | -- |
| 230 V AC | | L2 | -- | -- | -- |

[1)] Operating range at 220 V AC: 0.85 to 1.15 × $U_s$; lower operating range limit according to IEC 60947.

[2)] Upper operating range limit at 230 V AC: 1.14 x $U_s$.

### Accessories

| For contactors | | Version | Auxiliary switches | | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | | Auxiliary contacts | Left | Right | Article No. | Price per PU | | | |
| Size | Type | NO | NC | | | | | | |
| **Second auxiliary switch (for AC operation only)** | | | | | | | | | |
| 4 | 3TC48 | 2nd auxiliary switch, left | | | **3TY6501-1K** | | 1 | 1 unit | 41B |
| | | 1 | 1 | -- | | | | | |
| | | 2nd auxiliary switch, right | | | **3TY6501-1L** | | 1 | 1 unit | 41B |
| | | 1 | 1 | -- | | | | | |
| 8 and 12 | 3TC52, 3TC56 | 2nd auxiliary switch, left | | | **3TY6561-1K** | | 1 | 1 unit | 41B |
| | | 1 | 1 | -- | | | | | |
| | | 2nd auxiliary switch, right | | | **3TY6561-1L** | | 1 | 1 unit | 41B |
| | | 1 | 1 | -- | | | | | |
| **Solid-state compatible auxiliary switches** | | | | | | | | | |
| | | For operation in dusty atmospheres and in solid-state circuits with rated operational currents $I_e$/AC-14 and DC-13 of 1 ... 300 mA at 3 ... 60 V | | | | | | | |
| 2 and 4 | 3TC44, 3TC48 | 2nd auxiliary switch, left or right (replacement for 3TY6561-1U, 3TY6561-1V) | | | **3TY7561-1UA00** | | 1 | 1 unit | 41B |
| | | 1 CO contact | | | | | | | |

5TY7561-1.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | For contactors | | Version | Rated control supply voltage $U_s$ | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Size | Type | | V AC | V DC | | | | | |
| **Surge suppressors · Varistors** | | | | | | | | | | |
| 3TX7402-3. | 2 | 3TC44[1] | **Varistors**[2] With line spacer, for mounting on the coil terminal | 24 ... 48 | 24 ... 70 | **3TX7402-3G** | | 1 | 1 unit | 41B |
| | | | | 48 ... 127 | 70 ... 150 | **3TX7402-3H** | | 1 | 1 unit | 41B |
| | | | | 127 ... 240 | 150 ... 250 | **3TX7402-3J** | | 1 | 1 unit | 41B |
| | | | | 240 ... 400 | -- | **3TX7402-3K** | | 1 | 1 unit | 41B |
| | | | | 400 ... 600 | -- | **3TX7402-3L** | | 1 | 1 unit | 41B |
| 3TX7462-3. | 4 | 3TC48 | **Varistors**[2] For sticking onto the contactor base or for mounting separately | 24 ... 48 | 24 ... 70 | **3TX7462-3G** | | 1 | 1 unit | 41B |
| | | | | 48 ... 127 | 70 ... 150 | **3TX7462-3H** | | 1 | 1 unit | 41B |
| | | | | 127 ... 240 | 150 ... 250 | **3TX7462-3J** | | 1 | 1 unit | 41B |
| | | | | 240 ... 400 | -- | **3TX7462-3K** | | 1 | 1 unit | 41B |
| | | | | 400 ... 600 | -- | **3TX7462-3L** | | 1 | 1 unit | 41B |
| | 8 and 12 | 3TC52, 3TC56 | **Varistors** For sticking onto the contactor base or for mounting separately | 24 ... 48 | -- | **3TX7462-3G** | | 1 | 1 unit | 41B |
| | | | | 48 ... 127 | -- | **3TX7462-3H** | | 1 | 1 unit | 41B |
| | | | | 127 ... 240 | -- | **3TX7462-3J** | | 1 | 1 unit | 41B |
| | | | | 240 ... 400 | -- | **3TX7462-3K** | | 1 | 1 unit | 41B |
| | | | | 400 ... 600 | -- | **3TX7462-3L** | | 1 | 1 unit | 41B |
| 3TX7522-3. | 8 and 12 | 3TC52, 3TC56 | **Varistors**[2] For separate screw fixing or snapping onto TH 35 DIN rail | -- | 24 ... 70 | **3TX7522-3G** | | 1 | 1 unit | 41B |
| | | | | -- | 70 ... 150 | **3TX7522-3H** | | 1 | 1 unit | 41B |
| | | | | -- | 150 ... 250 | **3TX7522-3J** | | 1 | 1 unit | 41B |
| **Surge suppressors · RC elements** | | | | | | | | | | |
| 3TX7462-3., 3TX7522-3. | 4 | 3TC48 | **RC elements** For lateral snapping onto auxiliary switch or TH 35 DIN rail | 24 ... 48 | -- | **3TX7462-3R** | | 1 | 1 unit | 41B |
| | | | | -- | 24 ... 70 | **3TX7522-3R** | | 1 | 1 unit | 41B |
| | | | | 48 ... 127 | -- | **3TX7462-3S** | | 1 | 1 unit | 41B |
| | | | | -- | 70 ... 150 | **3TX7522-3S** | | 1 | 1 unit | 41B |
| | | | | 127 ... 240 | -- | **3TX7462-3T** | | 1 | 1 unit | 41B |
| | | | | -- | 150 ... 250 | **3TX7522-3T** | | 1 | 1 unit | 41B |
| | | | | 240 ... 400 | -- | **3TX7462-3U** | | 1 | 1 unit | 41B |
| | | | | 400 ... 600 | -- | **3TX7462-3V** | | 1 | 1 unit | 41B |
| | 8 and 12 | 3TC52, 3TC56 | **RC elements** For lateral snapping onto auxiliary switch or TH 35 DIN rail | 24 ... 48 | -- | **3TX7522-3R** | | 1 | 1 unit | 41B |
| | | | | 48 ... 127 | -- | **3TX7522-3S** | | 1 | 1 unit | 41B |
| | | | | 127 ... 240 | -- | **3TX7522-3T** | | 1 | 1 unit | 41B |
| | | | | 240 ... 400 | -- | **3TX7522-3U** | | 1 | 1 unit | 41B |
| | | | | 400 ... 600 | -- | **3TX7522-3V** | | 1 | 1 unit | 41B |
| **Surge suppressors · Diodes** | | | | | | | | | | |
| 3TX7462-3. | 4 to 12 | 3TC48, 3TC52, 3TC56 | **Diode assemblies**[3] (Diode and Zener diode) for DC solenoid system, for sticking onto the contactor base or for mounting separately | -- | 24 ... 250 | **3TX7462-3D** | | 1 | 1 unit | 41B |

[1] The connection piece for mounting the surge suppressor must be bent slightly.

[2] Includes the peak value of the alternating voltage on the DC side.

[3] Not for DC operation.

| | For contactors | | Version | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | Size | Type | | | | | | | |
| **Terminal covers** | | | | | | | | | |
| 3TX6546-3B | 2 | 3TC44 | For protection against inadvertent contact with exposed busbar connections (1 set = 2 units) | -- | **3TY2444-0B** | | 1 | 1 unit | 41B |
| | 6 | 3TC48 | For protection against inadvertent contact with exposed busbar connections<br>Can be screwed on free screw end; covers one busbar connection (1 set = 6 units) | M6 | **3TX6506-3B** | | 1 | 1 unit | 41B |
| | 8 and 12 | 3TC52, 3TC56 | | M10 | **3TX6546-3B** | | 1 | 1 unit | 41B |

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## 3TC contactors for switching DC voltage, 1- and 2-pole

### Spare parts

#### Auxiliary switches

| For contactors Size | Type | Version | Auxiliary contacts NO | NC | Auxiliary switches Left | Right | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***For lateral mounting*** | | | | | | | | | | | |
| 2 and 4 | 3TC44, 3TC48 | Auxiliary switch (replacement for 3TY6501-1A, 3TY6501-1B) | 1 | 1 | 13 21 14 22 | 31 43 32 44 | **3TY6501-1AA00** | | 1 | 1 unit | 41B |
| 8 and 12 | 3TC52, 3TC56 | Auxiliary switch, left | 1 | 1 | 13 21 14 22 | -- | **3TY6561-1A** | | 1 | 1 unit | 41B |
| | | Auxiliary switch, right | 1 | 1 | -- | 31 43 32 44 | **3TY6561-1B** | | 1 | 1 unit | 41B |
| 12 | 3TC74 | Auxiliary switches | 4 | 4 | 13 21 31 43 14 22 32 44 | 53 61 71 83 54 62 72 84 | **3TY2741-2J** | | 1 | 1 unit | 41B |
| 12 | 3TC78 | Auxiliary switch, left | 2 | 2 | 13 21 31 43 14 22 32 44 | -- | **3TY2781-2C** | | 1 | 1 unit | 41B |
| | | Auxiliary switch, right | 2 | 2 | -- | 53 61 71 83 54 62 72 84 | **3TY2781-2D** | | 1 | 1 unit | 41B |

3TY6561-1A

#### Surge suppressors · Varistors

| For contactors Size | Type | Version | Rated control supply voltage $U_s$ V AC/DC | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| 12 | 3TC7 | For sticking onto the contactor base | 24 | **3TX2746-2F** | | 1 | 1 unit | 41B |
| | | | 110 | **3TX2746-2G** | | 1 | 1 unit | 41B |

#### Solenoid coils

| For contactors Size | Type | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| ***DC operation***[1] | | | | | | | |
| 2 | 3TC44 | -- | **3TY6443-0B..** | | | | |
| 4 | 3TC48 | | **3TY6483-0B..** | | | | |
| 8 | 3TC52 | | **3TY6523-0B..** | | | | |
| 12 | 3TC56 | | **3TY6563-0B..** | | | | |
| ***AC operation***[1] | | | | | | | |
| 2 | 3TC44 | -- | **3TY7403-0A..** | | | | |
| 4 | 3TC48 | | **3TY6483-0A..** | | | | |
| 8 | 3TC52 | | **3TY6523-0A..** | | | | |
| 12 | 3TC56 | | **3TY6566-0A..** | | | | |

#### Contacts with fixing parts

In order to ensure reliable operation of the contactors, only **original spare contacts** should be used.

| Size | Type | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| 2 | 3TC44 | (1 set = 2 moving and 4 fixed contacts) | **3TY2440-0A** | | 1 | 1 unit | 41B |
| 4 | 3TC48 | | **3TY2480-0A** | | 1 | 1 unit | 41B |
| 8 | 3TC52 | | **3TY2520-0A** | | 1 | 1 unit | 41B |
| 12 | 3TC56 | | **3TY2560-0A** | | 1 | 1 unit | 41B |
| 12 | 3TC7 | Main contacts (1 set) For 3TC78: 2 units required per contactor | **3TY2740-0E** | | 1 | 1 unit | 41B |

3TY2520-0A

#### Arc chutes

| Size | Type | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| 2 | 3TC44 | Arc chutes, 2-pole | **3TY2442-0A** | | 1 | 1 unit | 41B |
| 4 | 3TC48 | | **3TY2482-0A** | | 1 | 1 unit | 41B |
| 8 | 3TC52 | | **3TY2522-0A** | | 1 | 1 unit | 41B |
| 12 | 3TC56 | | **3TY2562-0A** | | 1 | 1 unit | 41B |
| 12 | 3TC7 | For 3TC78: 2 units required per contactor | **3TY2742-0C** | | 1 | 1 unit | 41B |

3TY2482-0A

[1] Rated control supply voltages, see page 4/78. The 10th and 11th digits of the article number must be supplemented accordingly.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | |
|---|---|
| | **Price groups** |
| | PG 41A, 41B, 41H, 41L |
| 5/2 | **Introduction** |
| | **Contactor relays** |
| 5/5 | SIRIUS 3RH2 contactor relays, 4- and 8-pole |
| 5/14 | 3TH4 contactor relays, 8- and 10-pole |
| 5/20 | - Accessories for 3TH4 contactor relays |
| | Contactors for railway applications |
| 4/63 | - SIRIUS 3RH2 contactor relays with extended operating range |
| 4/66 | - 3TH4 contactor relays, 8-pole |
| | **Coupling relays** |
| 5/21 | SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e NEW |
| 5/29 | SIRIUS 3RQ2 coupling relays with industrial enclosure |
| 5/33 | SIRIUS 3RQ3 coupling relays, narrow design |
| 5/42 | LZS coupling relays with plug-in relays |
| 3/138 | **3TG10 power relays/miniature contactors** |

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## Introduction

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius | Conversion tool, see www.siemens.com/conversion-tool |
| Industry Mall, see www.siemens.com/product?3RH_3TH | |

**The advantages at a glance**

| | | | | |
|---|---|---|---|---|
| Size | **S00** | **S00** | **--** | **--** |
| Type | 3RH21 | 3RH22 | 3TH42 | 3TH43 |

| | | Article No. | Page |
|---|---|---|---|
| **SIRIUS 3RH2 contactor relays** | | | |
| **4-pole** | • Screw or spring-loaded terminals | **3RH21** | 5/10, 5/11 |
| **8-pole** | | **3RH22** | 5/10, 5/11 |
| **4-pole, latched** | | **3RH24** | 5/10, 5/11 |
| **Coupling contactor relays** | • Coils for control by the PLC | **3RH21** | 5/12, 5/13 |
| **Contactor relays for railway applications** | • Coils with extended voltage range | **3RH21** | 4/65 |
| **3TH4 contactor relays** | | | |
| **8-pole** | • Screw terminals | **3TH42** | 5/17 |
| **10-pole** | | **3TH43** | 5/18 |
| **Contactor relays for railway applications** | • Coils with extended voltage range | **3TH42** | 4/66 |
| **Accessories for SIRIUS 3RH2 contactor relays** | | | |
| **Auxiliary switches** | • On the front | **3RH29, 3RA281.** | from 3/81 onwards, 3/95 |
| | • Lateral | **3RH29** | 3/91 |
| **Function modules (direct-on-line starting, star-delta (wye-delta) starting)** | • On the front | **3RA281., 3RA283.** | 3/100 |
| **Surge suppressors** | • On the front | **3RT2916** | 3/97, 3/98 |
| **Additional load modules** | • On the front | **3RT2916** | 3/114 |

Note:

Safety characteristics for contactors, see "Standards and approvals", page 16/9.

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**More information**

Homepage, see www.siemens.com/sirius-coupling-relays

Industry Mall, see www.siemens.com/product?3RQ_3RS_LZ

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais

Conversion tool, see www.siemens.com/conversion-tool

Video: Overview of SIRIUS coupling relays

**The advantages at a glance**

Type 3RQ1

3RQ2

3RQ3

LZS/LZX

| | | Article No. | Page |
|---|---|---|---|
| **SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e** | | | |
| **Coupling relays with force-guided contacts** | • Widths 17.5 and 22.5 mm<br>• Safety certification according to functional safety SIL 3/PL e<br>• Can be used as output extension for SIRIUS 3SK safety relays via device connectors | **3RQ1** | 5/21 |
| **SIRIUS 3RQ2 coupling relays with industrial enclosure** | | | |
| **Coupling relays with relay output** | • 1, 2 or 3 changeover contacts with wide voltage range<br>• Also available with hard gold-plated contacts | **3RQ2** | 5/29 |
| **SIRIUS 3RQ3 coupling relays, narrow design** | | | |
| **Coupling relays with relay output (not plug-in)** | • Width 6.2 mm, 1 CO, versions with hard gold-plated contacts optionally available<br>- Output coupling links<br>- Input coupling links | <br><br>**3RQ301**<br>**3RQ303** | <br><br>5/33<br>5/33 |
| **Coupling relays with plug-in relays** | • Width 6.2 mm, 1 CO, versions with hard gold-plated contacts optionally available<br>- Output coupling links | <br><br>**3RQ311** | <br><br>5/33 |
| **Coupling relays with semiconductor output (not plug-in)** | • Width 6.2 mm, output 1 semiconductor, triac or transistor<br>- Output coupling links<br>- Input coupling links | <br>**3RQ305, 3RQ306**<br>**3RQ307** | <br>5/33<br>5/33 |
| **LZS coupling relays with plug-in relays** | | | |
| **Coupling relays with plug-in relays with 2, 3 and 4 changeover contacts** | • Switching capacity 12 A/10 A/6 A<br>• Width 27 mm<br>• Base with or without logical separation | **LZS:PT, LZX:PT** | 5/48 ... 5/50 |
| **Coupling relays with plug-in relays with 3 changeover contacts and circular base** | • Switching capacity 10 A<br>• 11-pole circular base<br>• Width 38 mm | **LZS:MT, LZX:MT** | 5/48 |
| **Coupling relays with plug-in relays with 1 or 2 changeover contacts** | • Switching capacity 16 A/8 A<br>• Width 15.5 mm<br>• Base with or without logical separation | **LZS:RT, LZX:RT** | 5/49 |

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## Introduction

### *Connection methods*

The contactor relays and the relays are available with screw terminals (box terminals) or with spring-loaded terminals.

The 3RQ coupling relays are supplied with screw terminals or spring-loaded (push-in) terminals. The plug-in sockets for LZS/LZX coupling relays are also available with plug-in (push-in) terminals.

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals, spring-loaded terminals (push-in) |
| | Flat connectors |
| | Plug-in terminals (push-in) |
| | The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds. |

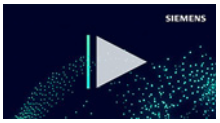
### *3RQ coupling relays: Spring-loaded terminals (push-in) with TOP wiring*

Push-in terminals are a form of spring-loaded terminals allowing fast wiring without tools for rigid conductors or conductors equipped with end sleeves.

As with other spring-type terminals, a screwdriver (with 3.0 x 0.5 mm blade) is required to disconnect the conductor. The same tool can also be used to wire finely-stranded or stranded conductors with no end finishing.

The advantages of the push-in terminals are found, as with all spring-loaded terminals, in speed of assembly and disassembly and vibration-proof connection. There is no need for the checking and tightening required with screw terminals.

With the TOP wiring method, the wire inlet and terminals can be reached from the front. This helps to speed up the wiring process and eliminate wiring errors.




Video: SIRIUS spring-loaded terminals - Strong, flexible, safe, fast

### *Ordering notes for multi-unit packaging*

On request, 3RQ1 and 3RQ2 coupling relays can also be ordered in practical and environmentally friendly multi-unit packaging.

Multi-unit packaging with order code X90

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code **"X90"** must be specified.

Ordering examples:

- 3RQ10 coupling relays with a width of 17.5 mm
  3RQ1000-1EB00-Z X90;
  Order quantity 16 units → Delivered in one package containing 16 units
- 3RQ20 coupling relays with a width of 22.5 mm
  3RQ2000-1AW00-Z X90;
  Order quantity 12 units → Delivered in one package containing 12 units

For more information, see page 16/7.

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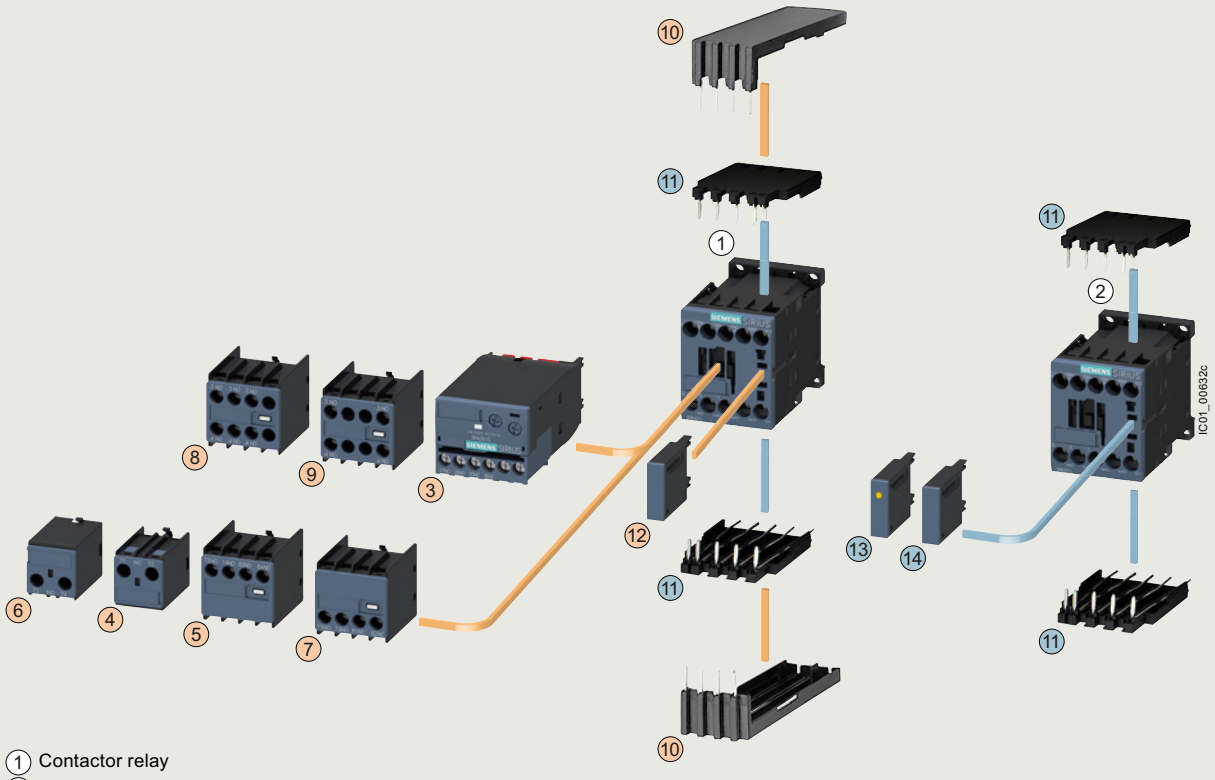
## Overview

***Contactor relays,***
***size S00, with accessories***




(1) Contactor relay
(2) Coupling contactor relay for auxiliary circuits

(3) 3RA28 function module
(4) 1-pole auxiliary switch, cable entry from the top
(5) 2-pole auxiliary switch, cable entry from the top
(6) 1-pole auxiliary switch, cable entry from the bottom
(7) 2-pole auxiliary switch, cable entry from the bottom
(8) 4-pole auxiliary switch
(terminal designations according to EN 50011 or EN 50005)
(9) 2-pole auxiliary switch, solid-state compatible version
(terminal designations according to EN 50005)

(10) Solder pin adapter for contactor relays with 4-pole auxiliary switch
(11) Solder pin adapter
(12) Additional load module for increasing the permissible residual current
(13) Surge suppressor with LED
(14) Surge suppressor without LED

For contactor relays
For contactor relays and coupling contactor relays

Accessories, see page 3/69 onwards.

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## SIRIUS 3RH2 contactor relays, 4- and 8-pole

### *Standards*

IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1

The 3RH2 contactor relays are available with screw or spring-loaded terminals. The basic unit contains four contacts with terminal designations according to EN 50011.

The 3RH21 coupling contactor relays for switching auxiliary circuits are tailored to the special requirements of working with electronic controls.

### *Contact reliability of auxiliary contacts*

High contact stability at low voltages and currents, suitable for solid-state circuits with currents ≥ 1 mA at a voltage of ≥ 17 V.

### *Protection of the device connections against overvoltage*

Protection against overvoltage at the control supply voltage connection

RC elements, varistors, diodes or diode assemblies (combination of a diode and a Zener diode) can be plugged onto all 3RH2 contactor relays from the front for damping opening surges in the coil. The plug-in direction is determined by a coding device.

Coupling contactor relays have a low power consumption and an extended solenoid coil operating range.

Depending on the version, the solenoid coils of the coupling contactor relays are supplied either without overvoltage damping (versions 3RH21..-.HB40 or 3RH21..-.MB40-0KT0) or with a diode or suppressor diode connected as standard.

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more information on how damping influences the time response, see the Equipment Manual.

### *Accessories*

The accessories for the 3RT2 contactors in size S00 can also be used for the 3RH2 contactor relays (see page 3/69 onwards).

### *Mounting of additional auxiliary switches*

Expansion possibilities

All 3RH21 contactor relays (except for coupling contactor relays) can be expanded using auxiliary switches; the permissible configuration must be observed.

For detailed information about fitting of auxiliary switches, see pages 3/81 to 3/86.

The auxiliary switch can easily be snapped onto the front of the contactor relays. The auxiliary switch has a centrally positioned release lever for disassembly.

The conventional front auxiliary contacts fulfill the characteristics of force-guided operation and are therefore suitable for safety applications.

### *Contactor relays in safety-related applications*

Contactor relays are a significant part of safety-related applications. They are generally the actuators that perform the switching operation leading to the safe disconnection of the corresponding application or system.

Contactor relays with force-guided operation according to IEC 60947-5-1 are generally required for use in safety-related applications. Most of our contactors meet this requirement; a corresponding note can be found in the technical product data sheet.

### *Contactor relays with increased tamper protection*

Increased tamper protection is ensured either by using our contactor relay versions with permanently mounted auxiliary switches installed in the factory (e.g. 3RH22 contactor relays), or by using the 3RT2916-4MA10 sealable cover as an accessory (see page 3/112).

### *Article number scheme*

| Product versions | | Article number |
|---|---|---|
| **SIRIUS contactor relays** | | **3RH2** □ □ □ **–** □ □ □ □ **0 –** □ □ □ □ |
| Device type | e.g. 1 = 4-pole contactor relay | □ |
| Number of NO contacts | e.g. 2 = 2 NO | □ |
| Number of NC contacts | e.g. 2 = 2 NC | □ |
| Type of electrical connection | Screw terminals | **1** |
| | Spring-loaded terminals | **2** |
| Operating range/solenoid coil circuit | e.g. A = AC standard/without coil circuit | □ |
| Rated control supply voltage | e.g. P0 = 50/60 Hz 230 V AC | □ □ |
| Special version | | □ □ □ □ |
| Example | | **3RH2 1 2 2 – 1 A P 0 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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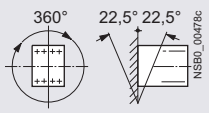
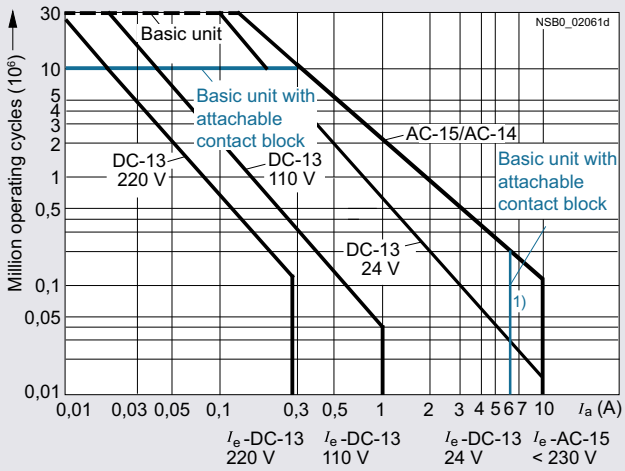
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16188/td<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16188/faq | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16188/man |

| | |
|---|---|
| | **Contactor relays** |
| Type | **3RH2** |
| Size | **S00** |
| **Permissible mounting position** | |
| The contactor relays are designed for operation on a vertical mounting surface. |  |
| Upright mounting position | Special version required<br>(in the case of coupling contactor relays and contactor relays with extended operating range 3RH2122-2K.40 on request) |
| **Force-guided operation of contacts in contactor relays** | |
| **3RH2:**<br>**Yes,** in the basic unit and the auxiliary switch as well as between the basic unit and the mounted auxiliary switch **(removable)** according to:<br>• ZH1/457<br>• IEC 60947-5-1, Annex L<br>**3RH22:**<br>**Yes,** in the basic unit and the auxiliary switch as well as between the basic unit and the mounted auxiliary switch **(permanently mounted)** according to:<br>• ZH1/457<br>• IEC 60947-5-1, Annex L<br>Note:<br>3RH2911-.NF. solid-state-compatible auxiliary switches have no force-guided contacts. | Explanations:<br>There is force-guided operation if it is ensured that the NC and NO contacts cannot be closed at the same time.<br>**ZH1/457**<br>Safety Rules for Controls on Power-Operated Metalworking Presses.<br>**IEC 60947-5-1, Annex L**<br>Standard for low-voltage switchgear and controlgear; "Special requirements for mechanically linked contact elements" |
| **Contact reliability** | |
| Contact reliability at 17 V, 1 mA according to IEC 60947-5-4 | Frequency of contact faults $<10^{-8}$, i.e. < 1 fault per 100 million operating cycles |
| **Contact endurance for AC-15/AC-14 and DC-13 utilization categories** | |
| The contact endurance is mainly dependent on the breaking current. It is assumed that the operating mechanisms are switched arbitrarily and not synchronously with the phase angle of the supply system switching operating mechanism.<br>If magnetic circuits other than the contactor operating mechanisms or solenoid valves are present, e.g. magnetic brakes, protective measures for the load circuits are necessary, e.g. in the form of RC elements and freewheeling diodes.<br>The characteristic curves apply to<br>• 3RH21/3RH22 contactor relays[1)]<br>• 3RH24 latched contactor relays<br>• 3RH2911 auxiliary switches[1)]<br>• Auxiliary switches for snapping onto the front, max. 4-pole and for mounting on the side in size S00 |  <br>Diagram legend:<br>$I_a$ = Breaking current<br>$I_e$ = Rated operational current |

[1)] 3RH22, 3RH2911: $I_e$ = 6 A for AC-15/AC-14 and DC-13.

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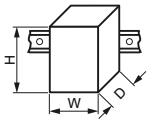
## SIRIUS 3RH2 contactor relays, 4- and 8-pole

| | | Contactor relays | | |
|---|---|---|---|---|
| Type | | 3RH21 | 3RH22 | 3RH24 |
| Size | | S00 | | |
| **General data** | | | | |
| **Dimensions (W x H x D)**  | | | | |
| • Basic units | | | | |
| - Screw terminals | mm | 45 x 58 x 73 | -- | 90 x 58 x 73 |
| - Spring-loaded terminals | mm | 45 x 70 x 73 | -- | |
| • Basic unit with mounted auxiliary switch | | | | |
| - Screw terminals | mm | 45 x 58 x 117 | | -- |
| - Spring-loaded terminals | mm | 45 x 70 x 121 | | -- |
| • Basic unit with mounted function module or solid-state time-delay auxiliary switch | | | | |
| - Screw terminals | mm | 45 x 58 x 147 | -- | |
| - Spring-loaded terminals | mm | 45 x 70 x 147 | -- | |
| **Mechanical endurance** | | | | |
| • Basic units | Operating cycles | 30 million | | 5 million |
| • Basic unit with mounted auxiliary switch | Operating cycles | 10 million | | 5 million |
| • Solid-state-compatible auxiliary switch | Operating cycles | 5 million | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 690 | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | | |
| **Protective separation** between coil and contacts in the basic unit, according to IEC 60947-1, Annex N | V | 400 | | |
| **Permissible ambient temperature** | | | | |
| • During operation | °C | -25 ... +60 | | |
| • During storage | °C | -55 ... +80 | | |
| **Short-circuit protection** | | | | |
| • Short-circuit test | | | | |
| - With fuse links of operational class gG: DIAZED, type 5SB; NEOZED, type 5SE with short-circuit current $I_k$ = 1 kA according to IEC 60947-5-1 | A | 10 | | |
| - With miniature circuit breakers with C characteristic with short-circuit current $I_k$ = 400 A according to IEC 60947-5-1 | A | 6 | | |

| | | Contactor relays | | |
|---|---|---|---|---|
| Type | | 3RH21 | 3RH22 | 3RH24 |
| Size | | S00 | | |
| **Conductor cross-sections** | | | | |
| **Auxiliary conductors and coil terminals** (1 or 2 conductors can be connected) | | **Screw terminals** | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1], max. 2 x 4 | | |
| • Finely stranded with end sleeve | $mm^2$ | 2 x (0.5 ... 1.5)[1]; 2 x (0.75 ... 2.5)[1] | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1]; 2 x (18 ... 14)[1] | | |
| • Terminal screw | | M3 (for Pozidriv size 2, ∅ 5 ... 6 mm) | | |
| - Tightening torque | Nm | 0.8 ... 1.2 (7 ... 10.3 lb.in) | | |
| **Auxiliary conductors and coil terminals**[2] (1 or 2 conductors can be connected) | | **Spring-loaded terminals** | | |
| • Operating devices | mm | 3.0 x 0.5; 3.5 x 0.5 | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 4) | | |
| • Finely stranded with end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 12) | | |
| **Auxiliary conductors for front and laterally mounted auxiliary switches**[2] | | | | |
| • Operating devices | mm | 3.0 x 0.5; 3.5 x 0.5 | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 2.5) | | |
| • Finely stranded with end sleeve | $mm^2$ | 2 x (0.5 ... 1.5) | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) | | |

1) If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

2) Max. external diameter of the conductor insulation: 3.6 mm. On spring-loaded terminals with conductor cross-sections ≤ 1 $mm^2$ an insulation stop is recommended, see page 3/115.

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| | | | |
|---|---|---|---|
| | | | **Contactor relays** |
| Type | | | **3RH2** |
| Size | | | **S00** |
| **Control** | | | |
| **Solenoid coil operating range** | | | |
| • AC operation | at 50 Hz<br>at 60 Hz | | 0.8 ... 1.1 x $U_s$<br>0.85 ... 1.1 x $U_s$ |
| • DC operation | at +50 °C<br>at +60 °C | | 0.8 ... 1.1 x $U_s$<br>0.85 ... 1.1 x $U_s$ |
| **Power consumption of the solenoid coil** (for cold coil and 1.0 x $U_s$) | | | |
| • AC operation, 50 Hz | | | |
| - Closing | | VA/p.f. | 37/0.8 |
| - Closed | | VA/p.f. | 5.7/0.25 |
| • AC operation, 60 Hz | | | |
| - Closing | | VA/p.f. | 33/0.75 |
| - Closed | | VA/p.f. | 4.4/0.25 |
| • DC operation<br>Closing = Closed | | W | 4.0 |
| **Permissible residual current of the electronics** (with 0 signal) | | | |
| • For AC operation[1] | | | < 4 mA x (230 V/$U_s$) |
| • For DC operation | | | < 10 mA x (24 V/$U_s$) |

1) The 3RT2916-1GA00 additional load module is recommended for higher residual currents, see page 3/114.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | **Coupling contactor relays** | | | | | | |
| Type | | | **3RH21..** | | | | | | |
| | | | **-.HB40** | **-.JB40** | **-.KB40** | **-.MB40-0KT0** | **-.VB40** | **-.SB40** | |
| Size | | | **S00** | | | | | | |
| **Control** | | | | | | | | | |
| **Solenoid coil operating range** | | | 0.7 ... 1.25 x $U_s$ | | | 0.85 ... 1.85 x $U_s$ | | | |
| **Power consumption of the solenoid coil** (for cold coil and 1.0 x $U_s$)<br>Closing = Closed<br>at $U_s$ = 24 V | | W | 2.8 | | | 1.6 | | | |
| **Permissible residual current** of the electronics with 0 signal | | | <10 mA x (24 V/$U_s$) | | | < 8 mA x (24 V/$U_s$) | | | |
| **Overvoltage configuration of the solenoid coil** | | | No overvoltage damping | Inte-grated diode | Integrated suppressor diode | No overvoltage damping | Inte-grated diode | Integrated suppressor diode | |

| | | | |
|---|---|---|---|
| | | | **Contactor relays** |
| Type | | | **3RH2** |
| Size | | | **S00** |
| **Rated data of the auxiliary contacts** | | | |
| ***Load rating with AC*** | | | |
| **Rated operational currents $I_e$** | | | |
| AC-12 | | A | 10 |
| AC-15/AC-14, at rated operational voltage $U_e$ | Up to 230 V | A | 10[1] |
| | 400 V | A | 3 |
| | 500 V | A | 2 |
| | 690 V | A | 1 |
| **CSA and UL rated data** | | | |
| **Basic units and auxiliary switches** | | | |
| • Rated control supply voltage | | V AC | max. 600 |
| • Rated voltage | | V AC | 600 |
| • Switching capacity | | | A 600, Q 600 |
| • Uninterrupted current at 240 V AC | | A | 10 |

1) 3RH22, 3RH29: $I_e$ = 6 A for AC-15/AC-14 and DC-13.

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## SIRIUS 3RH2 contactor relays, 4- and 8-pole

### Selection and ordering data

***AC operation***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41A

3RH2122-1A..0

3RH2122-2A..0

3RH2244-1A..0

3RH2244-2A..0

3RH2422-1A..0

| Rated operational current $I_e$/AC-15/AC-14 at **230 V** | Contacts | | | Rated control supply voltage $U_s$ at 50/60 Hz[1] | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|
| | Ident. No. | Version | | | Article No. | Price per PU | Article No. | Price per PU |
| A | | NO | NC | V AC | | | | |
| **For screw and snap-on mounting on TH 35 DIN rail** | | | | | | | | |
| ***Size S00*** | | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2140-1AB00** | | **3RH2140-2AB00** | |
| | | | | 110 | **3RH2140-1AF00** | | **3RH2140-2AF00** | |
| | | | | 230 | **3RH2140-1AP00** | | **3RH2140-2AP00** | |
| | **31E** | 3 | 1 | 24 | **3RH2131-1AB00** | | **3RH2131-2AB00** | |
| | | | | 110 | **3RH2131-1AF00** | | **3RH2131-2AF00** | |
| | | | | 230 | **3RH2131-1AP00** | | **3RH2131-2AP00** | |
| | **22E** | 2 | 2 | 24 | **3RH2122-1AB00** | | **3RH2122-2AB00** | |
| | | | | 110 | **3RH2122-1AF00** | | **3RH2122-2AF00** | |
| | | | | 230 | **3RH2122-1AP00** | | **3RH2122-2AP00** | |
| **With permanently mounted auxiliary switch** | | | | | | | | |
| **6** | **44E** | 4 | 4 | 230 | **3RH2244-1AP00** | | **3RH2244-2AP00** | |
| | **62E** | 6 | 2 | 230 | **3RH2262-1AP00** | | **3RH2262-2AP00** | |
| **Latched** | | | | | | | | |
| No lateral auxiliary switches can be mounted | | | | | | | | |
| **10** | **40 E** | 4 | -- | 24 | **3RH2440-1AB00** | | -- | |
| | | | | 110 | **3RH2440-1AF00** | | -- | |
| | | | | 230 | **3RH2440-1AP00** | | -- | |
| | **31 E** | 3 | 1 | 24 | **3RH2431-1AB00** | | -- | |
| | | | | 110 | **3RH2431-1AF00** | | -- | |
| | | | | 230 | **3RH2431-1AP00** | | -- | |
| | **22 E** | 2 | 2 | 24 | **3RH2422-1AB00** | | -- | |
| | | | | 110 | **3RH2422-1AF00** | | -- | |
| | | | | 230 | **3RH2422-1AP00** | | -- | |

[1] Coil operating range
- at 50 Hz: 0.8 to 1.1 x $U_s$
- at 60 Hz: 0.85 to 1.1 x $U_s$.

Other voltages according to page 3/67 on request.
Accessories, see page 3/69 onwards.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***DC operation*** ⎓

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41A

3RH2122-1B..0

3RH2122-2B..0

3RH2244-1B..0

3RH2244-2B..0

3RH2422-1B.40

| Rated operational current $I_e$/AC-15/AC-14 at **230 V** | Contacts Ident. No. | Version | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | Article No. | Price per PU |
| A | | NO | NC | V DC | | | | |
| **For screw and snap-on mounting on TH 35 DIN rail** | | | | | | | | |
| ***Size S00*** | | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2140-1BB40** | | **3RH2140-2BB40** | |
| | | | | 220 | **3RH2140-1BM40** | | **3RH2140-2BM40** | |
| | **31E** | 3 | 1 | 24 | **3RH2131-1BB40** | | **3RH2131-2BB40** | |
| | | | | 220 | **3RH2131-1BM40** | | **3RH2131-2BM40** | |
| | **22E** | 2 | 2 | 24 | **3RH2122-1BB40** | | **3RH2122-2BB40** | |
| | | | | 220 | **3RH2122-1BM40** | | **3RH2122-2BM40** | |
| **With integrated coil circuit (diode integrated at the factory)** | | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2140-1FB40** | | **3RH2140-2FB40** | |
| | **31E** | 3 | 1 | 24 | **3RH2131-1FB40** | | **3RH2131-2FB40** | |
| | **22E** | 2 | 2 | 24 | **3RH2122-1FB40** | | **3RH2122-2FB40** | |
| **With permanently mounted auxiliary switch** | | | | | | | | |
| **6** | **44E** | 4 | 4 | 24 | **3RH2244-1BB40** | | **3RH2244-2BB40** | |
| | **62E** | 6 | 2 | 24 | **3RH2262-1BB40** | | **3RH2262-2BB40** | |
| **Latched** | | | | | | | | |
| No lateral auxiliary switches can be mounted | | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2440-1BB40** | | -- | |
| | | | | 110 | **3RH2440-1BF40** | | -- | |
| | | | | 220 | **3RH2440-1BM40** | | -- | |
| | **31E** | 3 | 1 | 24 | **3RH2431-1BB40** | | -- | |
| | | | | 110 | **3RH2431-1BF40** | | -- | |
| | | | | 220 | **3RH2431-1BM40** | | -- | |
| | **22E** | 2 | 2 | 24 | **3RH2422-1BB40** | | -- | |
| | | | | 110 | **3RH2422-1BF40** | | -- | |
| | | | | 220 | **3RH2422-1BM40** | | -- | |

Other voltages according to page 3/67 on request.

Accessories, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS 3RH2 contactor relays, 4- and 8-pole

***DC operation for direct control by PLC*** ⎓

- Coupling contactor relays with adapted power consumption
- Suitable for solid-state PLC outputs
- Cannot be expanded with auxiliary switches

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41A

3RH21..-1.B40

3RH21..-2.B40

| Rated operational current $I_e$/AC-15/ AC-14 at **230 V** | Auxiliary contacts | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|
| | Ident. No. according to EN 50011 | Version | | Article No. | Price per PU | Article No. | Price per PU |
| **A** | NO | NC | V DC | | | | |
| **For screw and snap-on mounting on TH 35 DIN rail** | | | | | | | |
| ***Size S00*** | | | | | | | |
| Cannot be expanded with auxiliary switches | | | | | | | |
| Operating range **0.7 to 1.25 x $U_s$**, power consumption of the solenoid coils **2.8 W** at 24 V | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2140-1HB40** | | **3RH2140-2HB40** | |
| | **31E** | 3 | 1 | 24 | **3RH2131-1HB40** | | **3RH2131-2HB40** | |
| | **22E** | 2 | 2 | 24 | **3RH2122-1HB40** | | **3RH2122-2HB40** | |
| Operating range **0.85 to 1.85 x $U_s$**, power consumption of the solenoid coils **1.6 W** at 24 V | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2140-1MB40-0KT0** | | **3RH2140-2MB40-0KT0** | |
| | **31E** | 3 | 1 | 24 | **3RH2131-1MB40-0KT0** | | **3RH2131-2MB40-0KT0** | |
| | **22E** | 2 | 2 | 24 | **3RH2122-1MB40-0KT0** | | **3RH2122-2MB40-0KT0** | |

Other voltages according to page 3/67 on request.

Accessories, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***DC operation for direct control by PLC*** ⎓

- Coupling contactor relays with adapted power consumption
- Suitable for solid-state PLC outputs
- Cannot be expanded with auxiliary switches

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41A

3RH21..-1.B40

3RH21..-2.B40

| Rated operational current $I_e$/AC-15/ AC-14 at **230 V** | Auxiliary contacts | | | Rated control supply voltage $U_s$ | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|
| | Ident. No. according to EN 50011 | Version | | | Article No. | Price per PU | Article No. | Price per PU |
| **A** | | NO | NC | V DC | | | | |
| **For screw and snap-on mounting on TH 35 DIN rail** | | | | | | | | |
| ***Size S00*** | | | | | | | | |
| **With integrated coil circuit (diode integrated at factory)** | | | | | | | | |
| Cannot be expanded with auxiliary switches | | | | | | | | |
| Operating range **0.7 to 1.25 x $U_s$** Power consumption of the solenoid coils **2.8 W** at 24 V | | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2140-1JB40** | | **3RH2140-2JB40** | |
| | **31E** | 3 | 1 | 24 | **3RH2131-1JB40** | | **3RH2131-2JB40** | |
| | **22E** | 2 | 2 | 24 | **3RH2122-1JB40** | | **3RH2122-2JB40** | |
| Operating range **0.85 to 1.85 x $U_s$** Power consumption of the solenoid coils **1.6 W** at 24 V | | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2140-1VB40** | | **3RH2140-2VB40** | |
| | **31E** | 3 | 1 | 24 | **3RH2131-1VB40** | | **3RH2131-2VB40** | |
| | **22E** | 2 | 2 | 24 | **3RH2122-1VB40** | | **3RH2122-2VB40** | |
| **With integrated coil circuit (suppressor diode integrated at factory)** | | | | | | | | |
| Cannot be expanded with auxiliary switches | | | | | | | | |
| Operating range **0.7 to 1.25 x $U_s$** Power consumption of the solenoid coils **2.8 W** at 24 V | | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2140-1KB40** | | **3RH2140-2KB40** | |
| | **31E** | 3 | 1 | 24 | **3RH2131-1KB40** | | **3RH2131-2KB40** | |
| | **22E** | 2 | 2 | 24 | **3RH2122-1KB40** | | **3RH2122-2KB40** | |
| Operating range **0.85 to 1.85 x $U_s$** Power consumption of the solenoid coils **1.6 W** at 24 V | | | | | | | | |
| **10** | **40E** | 4 | -- | 24 | **3RH2140-1SB40** | | **3RH2140-2SB40** | |
| | **31E** | 3 | 1 | 24 | **3RH2131-1SB40** | | **3RH2131-2SB40** | |
| | **22E** | 2 | 2 | 24 | **3RH2122-1SB40** | | **3RH2122-2SB40** | |

Other voltages according to page 3/67 on request.

Accessories, see page 3/69 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3TH4 contactor relays, 8- and 10-pole

### Overview

***Standards***

IEC 60947-1, IEC 60947-5-1

Note:

The 3TH42 and 3TH43 contactor relays feature force-guided operation in accordance with IEC 60947-5-1, Ed. 3.1.

***Terminal designations according to EN 50011***

In terms of their terminal designations, identification numbers and identification letters, the 3TH42 and 3TH43 contactor relays conform to the standard EN 50011 for "Particular Contactor Relays".

***Contact reliability of auxiliary contacts***

High contact stability at low voltages and currents as a result of double-break contacts, suitable for solid-state circuits with currents ≥ 1 mA at a voltage of ≥ 17 V.

***Protection of the device connections against overvoltage***

Protection against overvoltage at the control supply voltage connection

The 3TH42 and 3TH43 contactor relays can be equipped with RC elements, varistors, diodes or diode assemblies (combination of a diode and a Zener diode) for damping opening surges. The surge suppressors can be mounted directly on the coil, see page 5/20.

Note:

The break times of the contactor, the opening delay times of the NO contacts and the closing delay times of the NC contacts increase with damping.

For more information on how damping influences the time response, see the Equipment Manual.

***Mounting***

Note:

With 3TH4 contactor relays with AC operation, an overvoltage of 1.1 x $U_S$, an ambient temperature ≥ 45 °C and 100% ON period of all contactors, a minimum clearance of 5 mm between the contactors shall be observed in the case of side-by-side mounting.

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16176/td<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16176/faq | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16176/man |

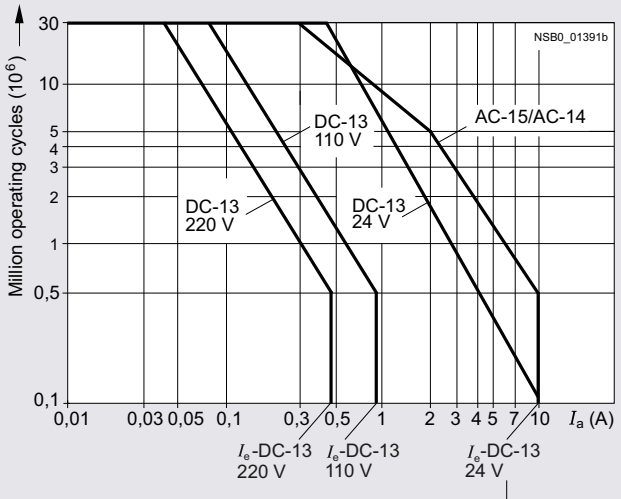
| Contactor relays | Type | 3TH42, 3TH43 |
|---|---|---|

**Contact endurance for AC-15/AC-14 and DC-13 utilization categories**

The contact endurance is mainly dependent on the breaking current. It is assumed that the operating mechanisms are switched arbitrarily and not synchronously with the phase angle of the supply system switching operating mechanism.

If magnetic circuits other than the contactor operating mechanisms or solenoid valves are present, e.g. magnetic brakes, protective measures for the load circuits are necessary.

RC elements or freewheeling diodes are suitable as protective measures for the circuits.



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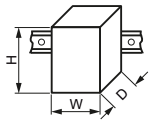
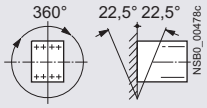
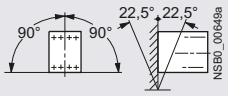
| Contactor relays | | Type | 3TH42 | 3TH43 |
|---|---|---|---|---|
| **General data** | | | | |
| **Dimensions (W x H x D)** |  | | | |
| • AC operation | | mm | 45 x 78 x 97 | 55 x 78 x 97 |
| • DC operation | | mm | 45 x 78 x 130 | 55 x 78 x 130 |
| **Permissible mounting position** | | | | |
| The contactor relays are designed for operation on a vertical mounting surface. | | | | |
| • AC operation |  | | | |
| • DC operation |  | | | |
| Upright mounting position AC and DC operation | | | Special version required | |
| **Mechanical endurance** | Basic units | Operating cycles | 30 million | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | | V | 690 | |
| **Rated impulse withstand voltage $U_{imp}$** | | kV | 8 | |
| **Protective separation** between the coil and the main contacts according to IEC 60947-1, Annex N | | V | Up to 500 | |
| **Permissible ambient temperature** | | | | |
| • During operation | | °C | -25 ... +55 | |
| • During storage | | °C | -55 ... +80 | |
| **Short-circuit protection** | | | | |
| Short-circuit test | | | | |
| • With fuse links of operational class gG With short-circuit current $I_k$ = 1 kA according to IEC 60947-5-1 | | | | |
| - LV HRC, type 3NA | | A | 16 | |
| - DIAZED, type 5SB | | A | 16 | |
| - NEOZED, type 5SE, quick | | A | 20 | |
| • With miniature circuit breakers With short-circuit current $I_k$ = 400 A according to IEC 60947-5-1 | | | | |
| - C characteristic | | A | 16 | |
| - B characteristic | | A | 16 | |
| **CSA and UL rated data** | | | | |
| ***Basic units*** | | | | |
| **Rated control supply voltage $U_s$** | | | Max. 600 V AC, 230 V DC (according to UL 240 V DC) | |
| **Rated voltage** | | | 600 V AC, 600 V DC | |
| **Switching capacity** | | | A 600, P 600 | |
| **Conductor cross-sections** | | | | |
| **Auxiliary conductors and coil terminals** (1 or 2 conductors can be connected) | | | **Screw terminals** | |
| • Solid or stranded | | $mm^2$ | 2 x (0.5 ... 1)[1]; 2 x (1 ... 2.5)[1]; 1 x 4 | |
| • Finely stranded with end sleeve | | $mm^2$ | 2 x (0.75 ... 2.5) | |
| • Terminal screw | | | M3.5 | |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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## 3TH4 contactor relays, 8- and 10-pole

| Contactor relays | Type | | 3TH42, 3TH43 |
|---|---|---|---|
| **Control** | | | |
| **Solenoid coil operating range** | | | |
| • AC operation | | | 0.8 ... 1.1 x $U_s$ [1] |
| • DC operation (except 24 V) | | | 0.8 ... 1.1 x $U_s$ |
| - At 24 V DC | | | 0.8 ... 1.2 x $U_s$ |
| **Power consumption of the solenoid coil** (for cold coil and 1.0 x $U_s$) | | | |
| • AC operation, 50 Hz, standard version | | | |
| - Closing | | VA/p.f. | 68/0.82 |
| - Closed | | VA/p.f. | 10/0.29 |
| • AC operation, 50/60 Hz, standard version | | | |
| - Closing, 50 Hz | | VA/p.f. | 77/0.81 |
| - Closed, 50 Hz | | VA/p.f. | 11/0.28 |
| - Closing, 60 Hz | | VA/p.f. | 71/0.75 |
| - Closed, 60 Hz | | VA/p.f. | 9/0.27 |
| • AC operation, 50 Hz, USA/Canada | | | |
| - Closing | | VA/p.f. | 68/0.82 |
| - Closed | | VA/p.f. | 10/0.29 |
| • AC operation, 60 Hz, USA/Canada | | | |
| - Closing | | VA/p.f. | 75/0.76 |
| - Closed | | VA/p.f. | 9.4/0.29 ... 0.3 |
| • AC operation, 50 Hz, Japan | | | |
| - Closing | | VA/p.f. | 80/0.8 |
| - Closed | | VA/p.f. | 10.7/0.29 |
| • AC operation, 60 Hz, Japan | | | |
| - Closing | | VA/p.f. | 75 ... 90/0.73 |
| - Closed | | VA/p.f. | 8.5 ... 10.7/0.29 ... 0.3 |
| • DC operation up to 250 V<br>Closing = Closed | | W | 6.2 |
| **Permissible residual current of the electronics** (with 0 signal) | | | |
| • For AC operation | | | ≤ 8 mA x (220 V/$U_s$) |
| • For DC operation | | | ≤ 1.25 mA x (220 V/$U_s$) |
| **Rated data of the auxiliary contacts** | | | |
| ***Load rating with AC*** | | | |
| **Rated operational currents $I_e$** | | | |
| • AC-12 | | A | 16 |
| • AC-15/AC-14,<br>at rated operational voltage $U_e$ | 230 V | A | 10 |
| | 400 V | A | 6 |
| | 500 V | A | 4 |
| | 690 V | A | 2 |
| **Rated power of three-phase motors**<br>According to utilization categories AC-3 and AC-3e, 50 Hz | 230/220 V | kW | 2.4 |
| | 400/380 V | kW | 4 |
| | 500 V | kW | 4 |
| | 690/660 V | kW | 4 |

[1] Coils for USA, Canada and Japan: 0.85 to 1.1 x $U_s$ at 60 Hz.

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## Selection and ordering data

***8-pole contactor relays***
***AC operation or DC operation***

3TH4280-0AP0

3TH4244-0BB4

| Contacts | Rated operational current $I_e$/AC-15/AC-14 at | | | | Contacts | | | | | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **230/ 220 V** | 400/ 380 V | 500 V | 690/ 660 V | Ident. No. according to EN 50011 | Version | | | | Article No. | Price per PU | | | |
| | | | | | | NO | NC | NO | NC | | | | | |
| Number | **A** | A | A | A | | | | | | | | | | |
| **For screw and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | | | | |
| ***AC operation, rated control supply voltage $U_s$ = 50 Hz 230/220 V AC***[1] | | | | | | | | | | | | | | |
| **8** | **10** | 6 | 4 | 2 | **80E** | 8 | -- | -- | -- | **3TH4280-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **71E** | 7 | 1 | -- | -- | **3TH4271-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **62E** | 6 | 2 | -- | -- | **3TH4262-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **53E** | 5 | 3 | -- | -- | **3TH4253-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **44E** | 4 | 4 | -- | -- | **3TH4244-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **44E, U** | 3 | 3 | 1 | 1 | **3TH4293-0AP0** | | 1 | 1 unit | 41A |
| ***DC operation, rated control supply voltage $U_s$ = 24 V DC*** | | | | | | | | | | | | | | |
| **8** | **10** | 6 | 4 | 2 | **80E** | 8 | -- | -- | -- | **3TH4280-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **71E** | 7 | 1 | -- | -- | **3TH4271-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **62E** | 6 | 2 | -- | -- | **3TH4262-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **53E** | 5 | 3 | -- | -- | **3TH4253-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **44E** | 4 | 4 | -- | -- | **3TH4244-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **44E, U** | 3 | 3 | 1 | 1 | **3TH4293-0BB4** | | 1 | 1 unit | 41A |

[1] Operating range at 220 V: 0.85 to 1.1 × $U_s$; lower operating range limit according to IEC 60947.

Other voltages according to page 5/19 on request.

Accessories, see page 5/20.

Note:

The solenoid coils of the 3TH42 contactor relays are available in various voltages as spare parts (on request).

- AC operation: 3TY7403-0A..
- DC operation: 3TY4803-0B..

The contacts cannot be replaced on 3TH42 contactor relays.

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## 3TH4 contactor relays, 8- and 10-pole

***10-pole contactor relays***
***AC operation or DC operation***

3TH4355-0AP0

3TH4355-0BB4

| Contacts | Rated operational current $I_e$/AC-15/AC-14 at | | | | Contacts | | | | | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **230 V** | 400 V | 500 V | 690 V | Ident. No. according to EN 50011 | Version | | | | Article No. | Price per PU | | | |
| Number | **A** | A | A | A | | NO | NC | NO | NC | | | | | |
| **For screw and snap-on mounting on TH 35 DIN rail** | | | | | | | | | | | | | | |
| ***AC operation, rated control supply voltage $U_s$ = 50 Hz 230/220 V AC***[1] | | | | | | | | | | | | | | |
| **10** | **10** | 6 | 4 | 2 | **100E** | 10 | -- | -- | -- | **3TH4310-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **91E** | 9 | 1 | -- | -- | **3TH4391-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **82E** | 8 | 2 | -- | -- | **3TH4382-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **73E** | 7 | 3 | -- | -- | **3TH4373-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **73E, U** | 6 | 2 | 1 | 1 | **3TH4346-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **64E** | 6 | 4 | -- | -- | **3TH4364-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **55E** | 5 | 5 | -- | -- | **3TH4355-0AP0** | | 1 | 1 unit | 41A |
| | | | | | **55E, U** | 4 | 4 | 1 | 1 | **3TH4394-0AP0** | | 1 | 1 unit | 41A |
| ***DC operation, rated control supply voltage $U_s$ = 24 V DC*** | | | | | | | | | | | | | | |
| **10** | **10** | 6 | 4 | 2 | **100E** | 10 | -- | -- | -- | **3TH4310-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **91E** | 9 | 1 | -- | -- | **3TH4391-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **82E** | 8 | 2 | -- | -- | **3TH4382-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **73E** | 7 | 3 | -- | -- | **3TH4373-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **73E, U** | 6 | 2 | 1 | 1 | **3TH4346-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **64E** | 6 | 4 | -- | -- | **3TH4364-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **55E** | 5 | 5 | -- | -- | **3TH4355-0BB4** | | 1 | 1 unit | 41A |
| | | | | | **55E, U** | 4 | 4 | 1 | 1 | **3TH4394-0BB4** | | 1 | 1 unit | 41A |

[1] Operating range at 220 V: 0.85 to 1.1 × $U_s$;
lower operating range limit according to IEC 60947.

Other voltages according to page 5/19 on request.
Accessories, see page 5/20.

Note:

The solenoid coils of the 3TH43 contactor relays are available in various voltages as spare parts (on request).

- AC operation: 3TY7403-0A..
- DC operation: 3TY4803-0B..

The contacts cannot be replaced on 3TH43 contactor relays.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Options

***Rated control supply voltages, possible on request (change of the 10th and 11th digits of the article number)***

Delivery time on request

| Rated control supply voltage $U_s$ | Contactor type<br>Control supply voltage at | 3TH42/3TH43 |
|---|---|---|
| ***AC operation*** | | |
| **Solenoid coils for 50 and 60 Hz AC** | | |
| **50 Hz** | **60 Hz** | |
| 24 V AC | 29 V AC | B0 |
| 36 V AC | 42 V AC | G0 |
| 42 V AC | 50 V AC | D0 |
| 48 V AC | 58 V AC | H0 |
| 60 V AC | 72 V AC | E0 |
| 110 V AC | 132 V AC | F0 |
| 125/127 V AC | 150/152 V AC | L0 |
| 230/220 V AC | 276 V AC | P0[1] |
| 240 V AC | 288 V AC | U0 |
| 400/380 V AC | 480/460 V AC | V0[1] |
| 415 V AC | 500 V AC | R0 |
| 500 V AC | 600 V AC | S0 |
| **50/60 Hz** | | |
| 24 V AC | | C2 |
| 42 V AC | | D2 |
| 110 V AC | | G2 |
| 115 V AC | | J2 |
| 120 V AC | | K2 |
| 220 V AC | | N2 |
| 230 V AC | | L2 |
| 240 V AC | | P2 |
| 440 V AC | | R2 |
| **For Japan** | | |
| **50 Hz** | **60 Hz** | |
| 100 V AC | 100 ... 110 V AC | G6[2] |
| 200 V AC | 200 ... 220 V AC | N6[2] |
| **For USA and Canada** | | |
| **50 Hz** | **60 Hz** | |
| 110 V AC | 120 V AC | K6[2] |
| 220 V AC | 240 V AC | P6[2] |

[1] Operating range at 220 V or 380 V: 0.85 to 1.1 x $U_s$.

[2] Operating range at 60 Hz: 0.85 to 1.1 x $U_s$.

| Rated control supply voltage $U_s$ | Contactor type | 3TH42/3TH43 |
|---|---|---|
| ***DC operation*** | | |
| 12 V DC | | A4 |
| 24 V DC | | B4 |
| 30 V DC | | C4 |
| 36 V DC | | V4 |
| 42 V DC | | D4 |
| 48 V DC | | W4 |
| 60 V DC | | E4 |
| 110 V DC | | F4 |
| 125 V DC | | G4 |
| 220 V DC | | M4 |
| 230 V DC | | P4 |
| 240 V DC | | Q4 |

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## Selection and ordering data

| Version | Rated control supply voltage $U_s$ AC V | Rated control supply voltage $U_s$ DC V | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Surge suppressors for 3TH4 contactor relays** | | | | | | | |
| 3TX7402-3. **Interference suppression diodes** With line spacer, for mounting on the coil terminal | -- | 24 ... 250 | **3TX7402-3A** | | 1 | 1 unit | 41B |
| **Diode assemblies** (diode and Zener diode) With line spacer, DC operation, for mounting on the coil terminal | -- | 24 ... 250 | **3TX7402-3D** | | 1 | 1 unit | 41B |
| **Varistors**[1] With line spacer, for mounting on the coil terminal | 24 ... 48 | 24 ... 70 | **3TX7402-3G** | | 1 | 1 unit | 41B |
| | 48 ... 127 | 70 ... 150 | **3TX7402-3H** | | 1 | 1 unit | 41B |
| | 127 ... 240 | 150 ... 250 | **3TX7402-3J** | | 1 | 1 unit | 41B |
| | 240 ... 400 | -- | **3TX7402-3K** | | 1 | 1 unit | 41B |
| | 400 ... 600 | -- | **3TX7402-3L** | | 1 | 1 unit | 41B |
| **RC elements** With line spacer, for mounting on the coil terminal | 24 ... 48 | 24 ... 70 | **3TX7402-3R** | | 1 | 1 unit | 41B |
| | 48 ... 127 | 70 ... 150 | **3TX7402-3S** | | 1 | 1 unit | 41B |
| | 127 ... 240 | 150 ... 250 | **3TX7402-3T** | | 1 | 1 unit | 41B |
| | 240 ... 400 | -- | **3TX7402-3U** | | 1 | 1 unit | 41B |
| | 400 ... 600 | -- | **3TX7402-3V** | | 1 | 1 unit | 41B |
| **Covers** for switch position indicator | -- | -- | **3TX4210-0P** | | 1 | 1 unit | 41B |

[1] Includes the peak value of the alternating voltage on the DC side.

| For contactors Type | Version | Rated control supply voltage $U_s$ 50/60 Hz AC V | Time setting range (minimum times) s | **Screw terminals** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **ON-delay devices** | | | | | | | | |
| 3TX4180-0A 3TH42, 3TH43 | **NTC thermistors** Time tolerance +100%, -50% | 220 ... 230 | 0.1 | **3TX4180-0A** | | 1 | 1 unit | 41B |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**NEW** **SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e**

## Overview

Picture on left: 3RQ1000-1EW00 coupling relay,
1 NO contact + 1 NC contact, screw terminal
Picture on right: 3RQ1000-2LW00 coupling relay,
4 NO contacts + 1 NC contact, spring-loaded terminal (push-in)

3RQ1 coupling relay in the 3SK system

**More information**

Homepage, see www.siemens.com/sirius-coupling-relays

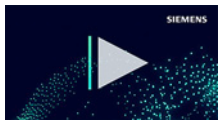
Industry Mall, see www.siemens.com/product?3RQ1

Technical specifications, see
https://support.industry.siemens.com/cs/ww/en/ps/26008/td

Manuals, see
https://support.industry.siemens.com/cs/ww/en/ps/26008/man

TIA Selection Tool Cloud (TST Cloud), see
www.siemens.com/tstcloud/?node=SIRIUSRelais

SIRIUS 3SK safety relays, see
https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10143262?tree=CatalogTree



Video: SIRIUS 3RQ1 coupling relays

The force-guided SIRIUS 3RQ1 coupling relays in a modern titanium gray industrial enclosure are available in widths of 17.5 mm and 22.5 mm, and each with a supply voltage of 24 V DC (120 mm mounting depth) and 24 to 240 V AC/DC (90 mm mounting depth).

They are used for safe coupling up to SIL 3/PL e of control signals to and from a control system or as an output expansion for the SIRIUS 3SK safety relays (see page 11/13 onwards).

Further fields of application are based on the force-guided operation of relays according to IEC 60947-5-1 and EN 61810-3 for reading back relay states, for reliable diagnostics or signaling, or for the use of antivalent signals. Typical fields of application here are railways, signaling technology and elevators.

The series consists of devices with up to five outputs and can be supplied with screw or spring-loaded (push-in) terminals.

International standards and certifications including CE, UL/CSA, EAC and railway approvals ensure international usability and exportability.

An extensive range of accessories is also available, such as device connectors for easy and safe connection of the 3RQ1 devices, replacement terminals, push-in lugs for wall mounting and coding pins, see page 5/27 onwards.

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## SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e NEW

***Article number scheme***

| Product versions | | Article number | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Coupling relays with force-guided contacts** | | **3RQ1** | **□** | **0** | **0** | **–** | **□** | **□** | **□** | **0** | **0** | |
| Version | Performance Level (SIL): c (SIL 2) | | **0** | | | | | | | | | |
| | Performance Level (SIL): e (SIL 3) | | **2** | | | | | | | | | |
| Connection methods | Screw terminals | | | | | | **1** | | | | | |
| | Spring-loaded terminals (push-in) | | | | | | **2** | | | | | |
| Outputs | 1 NO + 1 NC | | | | | | | **E** | | | | Width 17.5 mm |
| | 2 NO + 1 NC | | | | | | | **G** | | | | Width 17.5 mm |
| | 2 NO + 2 NC | | | | | | | **H** | | | | Width 22.5 mm |
| | 4 NO + 1 NC | | | | | | | **L** | | | | Width 22.5 mm |
| Rated control supply voltage | 24 V DC | | | | | | | | **B** | | | Depth 120 mm |
| | 24 to 240 V AC/DC | | | | | | | | **W** | | | Depth 90 mm |
| Example | | **3RQ1** | **0** | **0** | **0** | **–** | **1** | **E** | **W** | **0** | **0** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

### Benefits

- Wide-range voltage versions from 24 to 240 V AC/DC available with a mounting depth of 90 mm for all variants
- Permanent wiring thanks to removable terminals in screw or spring-loaded technology (push-in)
- Replacement of individual terminals minimizes wiring effort
- Can be used as output extension for SIRIUS 3SK safety relays via device connectors
- All versions with real load contacts, also in the NC circuit
- Safety certification according to functional safety SIL 3/PL e
- International standards and certifications including CE, UL/CSA, EAC, railway approvals, and more

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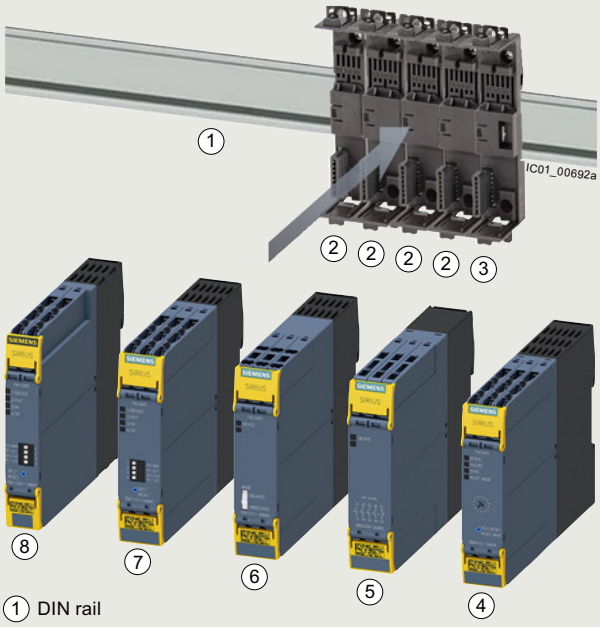
**NEW** **SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e**

## Application




1 DIN rail
2 Device connector
3 Device termination connector
4 SIRIUS 3RM1 motor starter
5 Force-guided 3RQ1 coupling relay as output expansion up to SIL 3/PL e
6 SIRIUS 3SK1211 output expansion
7 SIRIUS 3SK1121 Advanced basic unit
8 SIRIUS 3SK1220 sensor expansion

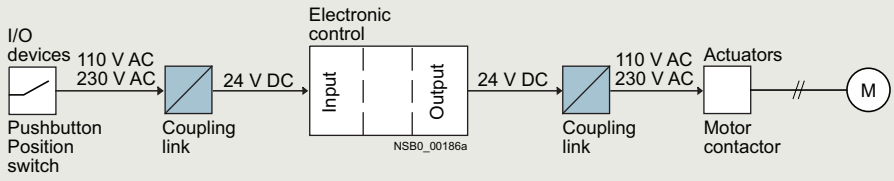
System configuration example with SIRIUS 3SK safety relays

- Safe coupling up to SIL 3/PL e of control signals from and to a control system
- Output expansion for 3SK safety relays
- Use of force-guided contacts for reading back relay states
- For reliable diagnostics or signaling or for antivalent switching of loads
- Safe coupling:
  - Electrical separation between the input and output circuit
  - Adjustment of different signal levels
  - Signal amplification
  - Contact multiplication

***3RQ1 output expansion (up to SIL 3/PL e) for the 3SK system***

The force-guided 3RQ1 coupling relays with a mounting depth of 120 mm can be used as an output expansion up to SIL 3/PL e and can be connected by wiring to all 3SK basic units and by using the 3ZY12 device connector to all 3SK1 and 3SK2 Advanced basic units.

They have a switching capacity of AC-15 5/3 A (like 3SK1211) at a switching voltage of 230 V and are available in widths of 17.5 mm and 22.5 mm. Furthermore, they have NC contacts with a switching capacity of AC-15 2/1.5 A for direct switching of loads (anti-parallel switching, signaling, etc.).




Typical application with a fail-safe control system

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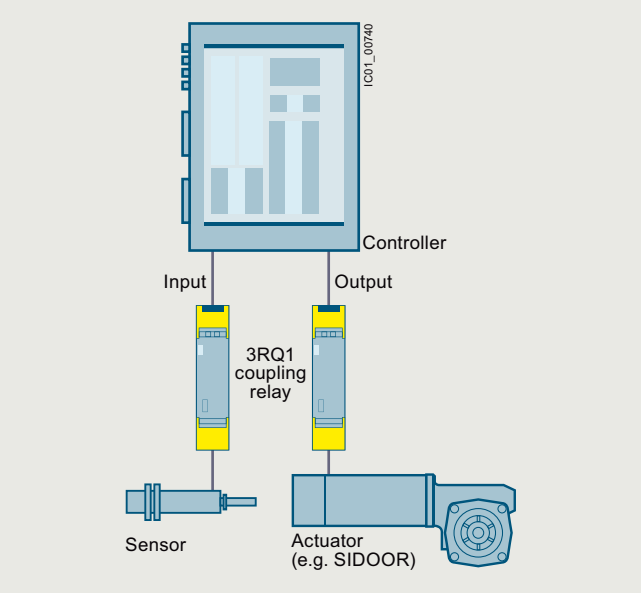
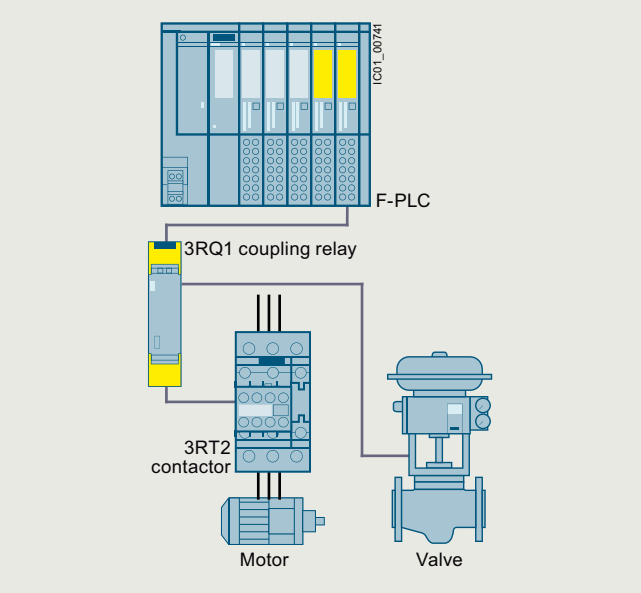
## SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e NEW

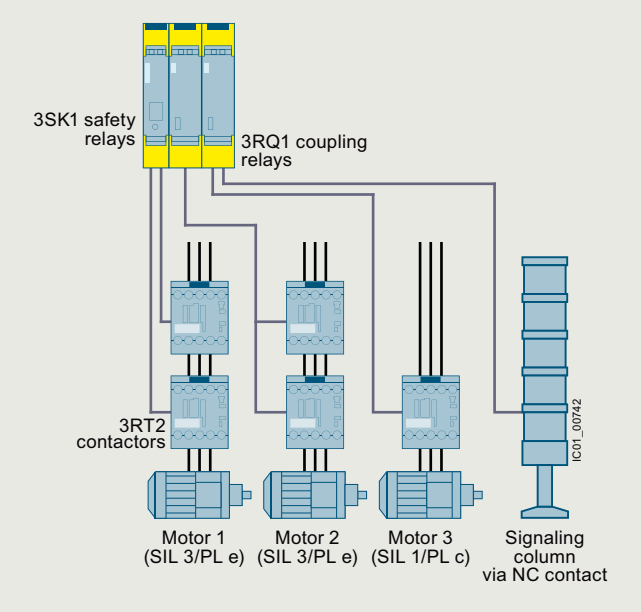
***Applications***




Application based on force-guided operation




3RQ1 as coupling link for signals, e.g. for a fail-safe control system




3RQ1 as output expansion (SIL 1 to 3) for 3SK with direct control of actuators and signaling elements

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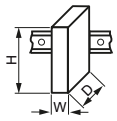
**NEW** **SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e**

## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/26008/td | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/26008/man<br>Equipment Manual 3SK1/3RQ1, see https://support.industry.siemens.com/cs/ww/en/view/67585885 |

| Article number | | 3RQ1000-.EB00, 3RQ1000-.GB00 | 3RQ1200-.EB00 | 3RQ1000-.EW00, 3RQ1000-.GW00 | 3RQ1200-.EW00 | 3RQ1000-.HB00, 3RQ1000-.LB00 | 3RQ1000-.HW00, 3RQ1000-.LW00 |
|---|---|---|---|---|---|---|---|
| **General data** | | | | | | | |
| **Dimensions (W x H x D)**  | mm | 17.5 x 100 x 120 | | 17.5 x 100 x 90 | | 22.5 x 100 x 120 | 22.5 x 100 x 90 |
| **Safety Integrity Level (SIL) according to IEC 62061** | | 2 | 3 | 2 | 3 | 2 | |
| **Performance Level (PL) according to ISO 13849-1** | | c | e | c | e | c | |
| **Certificate of suitability** | | | | | | | |
| • UL approval | | Yes | | | | | |
| • TÜV approval | | Yes | | | | | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3** | V | 300 | | | | | |
| **Ambient temperature** | | | | | | | |
| • During operation | °C | -25 ... +60 | | | | | |
| • During storage | °C | -40 ... +80 | | | | | |
| **Degree of protection IP** | | IP20 | | | | | |
| **Control circuit** | | | | | | | |
| **Control supply voltage** | | | | | | | |
| • At AC | | | | | | | |
| - At 50 Hz | V | -- | | 24 ... 240 | | -- | 24 ... 240 |
| - At 60 Hz | V | -- | | 24 ... 240 | | -- | 24 ... 240 |
| • At DC | V | 24 | | 24 ... 240 | | 24 | 24 ... 240 |
| **Operating range factor of the control supply voltage, rated value** | | | | | | | |
| • At DC | | 0.8 ... 1.2 | | 0.7 ... 1.1 | | 0.8 ... 1.2 | 0.7 ... 1.1 |
| **Load circuit** | | | | | | | |
| **Thermal current of the non-solid-state contact blocks, maximum** | A | 5 | | | | | |
| **Mechanical endurance (operating cycles) typical** | | 10 000 000 | | | | | |

| Article number | | 3RQ1000-1, 3RQ1200-1 | 3RQ1000-2, 3RQ1200-2 |
|---|---|---|---|
| **Type of electrical connection** | | **Screw terminals** | **Spring-loaded terminals (push-in)** |
| **Type of connectable conductor cross-sections** | | | |
| • Solid | | 1x (0.5 ... 4.0 $mm^2$), 2x (0.5 ... 2.5 $mm^2$) | 1x (0.5 ... 4 $mm^2$) |
| • Finely stranded with end sleeve | | 1x (0.5 ... 4 $mm^2$), 2x (0.5 ... 1.5 $mm^2$) | 1x (0.5 ... 2.5 $mm^2$) |
| • Solid for AWG cables | AWG | 1x (20 ... 12), 2x (20 ... 14) | 1x (20 ... 12) |
| **Tightening torque** | Nm | 0.6 ... 0.8 | -- |

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## SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e NEW

### Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

**Multi-unit packaging, see page 16/7.**

| Control supply voltage at AC at 50/60 Hz | Control supply voltage at DC | Number of auxiliary contacts | | Depth | Suitable for use with 3ZY12 device connector | Screw terminals | | Spring-loaded terminals (push-in) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Article No. | Price per PU | Article No. | Price per PU |
| V | V | NO | NC | mm | | | | | |
| **Width 17.5 mm** | | | | | | | | | |
| ***Fail-safe up to SIL 2/PL c*** | | | | | | | | | |
| -- | 24 | 1 | 1 | 120 | ✓ | **3RQ1000-1EB00** | | **3RQ1000-2EB00** | |
| -- | 24 | 2 | 1 | 120 | ✓ | **3RQ1000-1GB00** | | **3RQ1000-2GB00** | |
| 24 ... 240 | 24 ... 240 | 1 | 1 | 90 | -- | **3RQ1000-1EW00** | | **3RQ1000-2EW00** | |
| 24 ... 240 | 24 ... 240 | 2 | 1 | 90 | -- | **3RQ1000-1GW00** | | **3RQ1000-2GW00** | |
| ***Fail-safe up to SIL 3/PL e*** | | | | | | | | | |
| -- | 24 | 1 | --[1] | 120 | ✓ | **3RQ1200-1EB00** | | **3RQ1200-2EB00** | |
| 24 ... 240 | 24 ... 240 | 1 | 1 | 90 | -- | **3RQ1200-1EW00** | | **3RQ1200-2EW00** | |
| **Width 22.5 mm** | | | | | | | | | |
| ***Fail-safe up to SIL 2/PL c*** | | | | | | | | | |
| -- | 24 | 2 | 2 | 120 | ✓ | **3RQ1000-1HB00** | | **3RQ1000-2HB00** | |
| -- | 24 | 4 | 1 | 120 | ✓ | **3RQ1000-1LB00** | | **3RQ1000-2LB00** | |
| 24 ... 240 | 24 ... 240 | 2 | 2 | 90 | -- | **3RQ1000-1HW00** | | **3RQ1000-2HW00** | |
| 24 ... 240 | 24 ... 240 | 4 | 1 | 90 | -- | **3RQ1000-1LW00** | | **3RQ1000-2LW00** | |

3RQ1000-1EW00

3RQ1000-2EW00

3RQ1000-1LW00

3RQ1000-2LW00

✓ Yes
-- No
[1] NC contact designed to act as feedback contact.

Note:

All force-guided 3RQ1 coupling relays have safety certification up to SIL 2/PL c or SIL 3/PL e according to IEC 62061/ISO 13849.

To achieve SIL 3/PL e, two 3RQ10 devices can also be wired in series, see Equipment Manual.

In addition, the 3SK1211 devices (output expansions for 3SK) provide force-guided coupling relays with 4 NO contacts and 1 NC contact up to SIL 3/PL e with 24 V AC, 24 V DC, and 110 to 240 V AC/DC.

For applications with high currents up to a switching capacity of 10 A AC-15, the 3SK1213 output expansions are also available with 24 V AC, 24 V DC and 110 to 240 V AC/DC.

These devices can be used in the same way as the 3RQ1 coupling relays for coupling to and from safe control systems, they feature 4 NO contacts and 1 NC contact, and are available as variants with 24 V AC, 24 V DC and 110 to 240 V AC/DC (see page 11/27).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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**NEW** **SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e**

## Accessories

**More information**

Manuals, see
https://support.industry.siemens.com/cs/ww/en/ps/26008/man

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Device connectors for the electrical connection of SIRIUS devices in the industrial DIN-rail enclosure** | | | | | | |
| 3ZY1212-1BA00 3ZY1212-2BA00 | **Device connectors** | | | | | |
| | • Width 17.5 mm (for 3RQ1000-.EB00/-.GB00, 3RQ1200-.EB00) | **3ZY1212-1BA00** | | 1 | 1 unit | 41L |
| | • Width 22.5 mm (for 3RQ1000-.HB00/-.LB00) | **3ZY1212-2BA00** | | 1 | 1 unit | 41L |
| 3ZY1212-2DA00 | **Device termination connectors** | | | | | |
| | • Width 17.5 mm (for 3RQ1000-.EB00/-.GB00, 3RQ1200-.EB00) | **3ZY1212-1DA00** | | 1 | 1 unit | 41L |
| | • Width 22.5 mm (for 3RQ1000-.HB00/-.LB00) | **3ZY1212-2DA00** | | 1 | 1 unit | 41L |
| | Note:<br>Observe positions of the slide switch for width 22.5 mm, see Equipment Manual. | | | | | |
| | **Device daisy chain connectors**<br>24 V DC, 22.5 mm, for implementation of distances between devices according to the installation guidelines | **3ZY1212-2AB00** | | 1 | 1 unit | 41L |
| | **Device connectors**<br>For height adjustment for device arrangements without electrical connection via device connector, with a width of 22.5 mm or greater | **3ZY1210-2AA00** | | 1 | 1 unit | 41L |
| **Terminals for SIRIUS devices in the industrial DIN-rail enclosure** | | | | | | |
| 3ZY1122-1BA00 3ZY1122-2BA00 | **Removable terminals** | **Screw terminals** | | | | |
| | • 2-pole, up to 1 x 4 mm² or 2 x 2.5 mm² | **3ZY1122-1BA00** | | 1 | 6 units | 41L |
| | | **Spring-loaded terminals (push-in)** | | | | |
| | • 2-pole, up to 1 x 4 mm² or 2 x 1.5 mm² (in shared end sleeve) | **3ZY1122-2BA00** | | 1 | 6 units | 41L |

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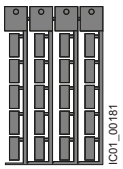
## SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e NEW

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Accessories for enclosures** | | | | | | |
| 3ZY1321-2AA00 | **Sealing covers** | | | | | |
| | • 17.5 mm | **3ZY1321-1AA00** | | 1 | 5 units | 41L |
| | • 22.5 mm | **3ZY1321-2AA00** | | 1 | 5 units | 41L |
| 3ZY1311-0AA00 | **Push-in lugs**<br>For wall mounting | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| 3ZY1440-1AA00 | **Coding pins**<br>For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; they enable the mechanical coding of terminals, see Equipment Manual. | **3ZY1440-1AA00** | | 1 | 12 units | 41L |
| 3ZY1450-1BA00 3ZY1450-1BB00 | **Hinged cover**<br>Replacement cover, without terminal labeling, yellow | | | | | |
| | • 17.5 mm wide | **3ZY1450-1BA00** | | 1 | 5 units | 41L |
| | • 22.5 mm wide | **3ZY1450-1BB00** | | 1 | 5 units | 41L |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1]<br>For SIRIUS devices | | | | | |
| | • 17.5 mm: 10 mm x 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| | • 22.5 mm: 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdriver**<br>For all SIRIUS devices with spring-loaded terminals<br>3.0 mm x 0.5 mm, length approx. 200 mm, titanium gray/black, partially insulated | **Spring-loaded terminals (push-in)** <br>**3RA2908-1A** | | 1 | 1 unit | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

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## Overview

SIRIUS 3RQ2 coupling relay, screw terminals, 3 changeover contacts

**More information**

Homepage, see www.siemens.com/sirius-coupling-relays
Industry Mall, see www.siemens.com/product?3RQ2
TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais
Conversion tool, see www.siemens.com/conversion-tool

3RQ2 coupling relays in their 22.5 mm industrial enclosure serve to couple control signals to and from a controller and replace the 3RS18 coupling relays. The 3RQ2 has an impressively high-quality industrial enclosure finished in modern titanium gray so that it fits in visually with the SIRIUS series of relays.

The series consists of devices with up to three changeover contacts with screw or spring-loaded terminals (push-in) and, with its wide voltage range from 24 to 240 V AC/DC, is a genuine highlight in the coupling relay market.

Thanks to terminal assignment that is identical to the previous version, existing products can easily be converted.

The reduced variety of components simplifies product selection and standardization.

Numerous accessories are available for the 3RQ2 coupling relays, for example replacement terminals, push-in lugs for wall mounting and coding pins.

5

### *Article number scheme*

| Product versions | | Article number |
|---|---|---|
| **Coupling relays, standard** | | **3RQ2000 – □ □ □ 0 □** |
| Connection methods | Screw terminals | **1** |
| | Spring-loaded terminals (push-in) | **2** |
| Outputs | 1 CO contact | **A** |
| | 2 CO contacts | **B** |
| | 3 CO contacts | **C** |
| Rated control supply voltage | 24 ... 240 V AC/DC | **W** |
| Material of switching contacts | 0 = AgSnO2 | **0** |
| | 1 = AgNi + Au | **1** |
| Example | | **3RQ2000 – 1 C W 0 1** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

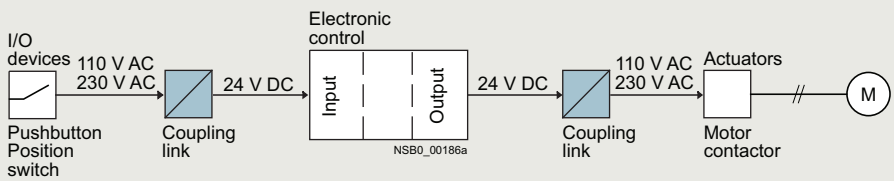
For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

- Permanent wiring thanks to removable terminals in screw or spring-loaded technology (push-in)
- Replacement of individual terminals minimizes wiring effort
- A product for all voltages from 24 to 240 V AC/DC
- Reduced costs thanks to fewer versions
- Especially high contact reliability even at low currents thanks to versions with hard gold-plated contacts
- International standards and certifications including CE, UL/CSA, EAC, railway approvals, and more

## Application

- Electrical separation between the input and output circuit
- Adjustment of different signal levels
- Signal amplification
- Contact multiplication




Application example motor controller

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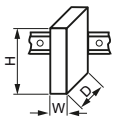
## SIRIUS 3RQ2 coupling relays with industrial enclosure

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25158/td | Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/ps/25158/man |

| Article number | | 3RQ2000-.AW00<br>3RQ2000-.BW00<br>3RQ2000-.CW00 | 3RQ2000-.CW01 |
|---|---|---|---|
| **General data** | | | |
| **Width x height x depth**  | mm | 22.5 x 100 x 90 | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3** | V | 300 | |
| **Max. permissible voltage for protective separation between control circuit and auxiliary circuit according to IEC 60947-1** | V | 300 | |
| **Ambient temperature** | | | |
| • During operation | °C | -40 ... +60 | |
| • During storage | °C | -40 ... +80 | |
| **Degree of protection IP** | | IP20 | |
| **Control circuit** | | | |
| **Control supply voltage** | V | 24 ... 240 AC/DC; 50/60 Hz | |
| **Operating range factor of control supply voltage** | | 0.7 ... 1.1 | |
| **Load circuit** | | | |
| **Thermal current of the non-solid-state contact blocks, maximum** | A | 5 | |
| **Current-carrying capacity of the output relay** | | | |
| • At AC-15 at 250 V | A | 3 | |
| • At DC-13 at 24 V | A | 1 | |
| • At DC-13 at 125 V | A | 0.2 | |
| • At DC-13 at 250 V | A | 0.1 | |
| **Mechanical endurance (operating cycles) typical** | | 10 000 000 | |
| **Electrical endurance (operating cycles) for AC-15 at 230 V, typical** | | 100 000 | |
| **Material of switching contacts** | | AgSnO2 | AgNi + Au |

| Article number | | 3RQ2000-1 | 3RQ2000-2 |
|---|---|---|---|
| **Type of electrical connection** | | **Screw terminals** | **Spring-loaded terminals (push-in)** |
| **Type of connectable conductor cross-sections** | | | |
| • Solid | | 1x (0.5 ... 4 mm²), 2x (0.5 ... 2.5 mm²) | 1x (0.5 ... 4 mm²) |
| • Finely stranded with end sleeve | | 1x (0.5 ... 4 mm²), 2x (0.5 ... 1.5 mm²) | 1x (0.5 ... 2.5 mm²) |
| • Solid for AWG cables | | 1x (20 ... 12), 2x (20 ... 14) | 1x (20 ... 12) |
| **Tightening torque** | Nm | 0.6 ... 0.8 | -- |

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## Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

Multi-unit packaging, see page 16/7.

| Control supply voltage at AC at 50 Hz | Control supply voltage at DC | Number of CO contacts for auxiliary contacts | Material of switching contacts | Screw terminals Article No. | Screw terminals Price per PU | Spring-loaded terminals (push-in) Article No. | Spring-loaded terminals (push-in) Price per PU |
|---|---|---|---|---|---|---|---|
| V | V | W | | | | | |
| **Coupling relays with industrial enclosure, 22.5 mm** | | | | | | | |
| 24 ... 240 | 24 ... 240 | 1 | AgSnO2 | **3RQ2000-1AW00** | | **3RQ2000-2AW00** | |
| | | 2 | AgSnO2 | **3RQ2000-1BW00** | | **3RQ2000-2BW00** | |
| | | 3 | AgSnO2 | **3RQ2000-1CW00** | | **3RQ2000-2CW00** | |
| | | 3 | AgNi + Au | **3RQ2000-1CW01** | | **3RQ2000-2CW01** | |

3RQ2000-1CW00

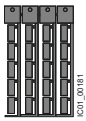
3RQ2000-2CW00

## Accessories

**More information**

Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/ps/25158/man

Conversion tool, see www.siemens.com/conversion-tool

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminals for SIRIUS devices in the industrial DIN-rail enclosure** | | | | | | |
| | **Removable terminals** | **Screw terminals** | | | | |
| 3ZY1122-1BA00 | • 2-pole, up to 1 x 4 mm² or 2 x 2.5 mm² | **3ZY1122-1BA00** | | 1 | 6 units | 41L |
| | | **Spring-loaded terminals (push-in)** | | | | |
| | • 2-pole, up to 1 x 4 mm² or 2 x 1.5 mm² (in shared end sleeve) | **3ZY1122-2BA00** | | 1 | 6 units | 41L |
| **Accessories for enclosures** | | | | | | |
| 3ZY1450-1AB00 | **Hinged cover** Replacement cover, without terminal labeling, titanium gray, 22.5 mm wide | **3ZY1450-1AB00** | | 1 | 5 units | 41L |
| 3ZY1311-0AA00 | **Push-in lugs** For wall mounting | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| 3ZY1440-1AA00 | **Coding pins** For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; they enable the mechanical coding of terminals | **3ZY1440-1AA00** | | 1 | 12 units | 41L |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates** For SIRIUS devices 20 mm x 7 mm, titanium gray[1)] | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdriver** For all SIRIUS devices with spring-loaded terminals 3.0 mm x 0.5 mm, length approx. 200 mm, titanium gray/black, partially insulated | **Spring-loaded terminals (push-in)** **3RA2908-1A** | | 1 | 1 unit | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## SIRIUS 3RQ2 coupling relays with industrial enclosure

### More information

***Code conversion table***

| SIRIUS 3RS18 coupling relays | | | | Comparison type SIRIUS 3RQ2 coupling relays | | | |
|---|---|---|---|---|---|---|---|
| Screw terminals | Spring-loaded terminals | Version | Contacts | Screw terminals | Spring-loaded terminals (push-in) | Version | Contacts |
| 3RS1800-1AQ00 | 3RS1800-2AQ00 | 24 V AC/DC; 110 ... 120 V AC | 1 CO contact | 3RQ2000-1AW00 | 3RQ2000-2AW00 | 24 ... 240 V AC/DC | 1 CO contact |
| 3RS1800-1AP00 | 3RS1800-2AP00 | 24 V AC/DC; 220 ... 240 V AC | | | | | |
| 3RS1800-1BW00 | 3RS1800-2BW00 | 24 ... 240 V AC/DC | 2 CO contacts | 3RQ2000-1BW00 | 3RQ2000-2BW00 | 24 ... 240 V AC/DC | 2 CO contacts |
| 3RS1800-1BQ00 | 3RS1800-2BQ00 | 24 V AC/DC; 110 ... 120 V AC | | | | | |
| 3RS1800-1BP00 | 3RS1800-2BP00 | 24 V AC/DC; 220 ... 240 V AC | | | | | |
| 3RS1800-1HW00 | 3RS1800-2HW00 | 24 ... 240 V AC/DC | 3 CO contacts | 3RQ2000-1CW00 | 3RQ2000-2CW00 | 24 ... 240 V AC/DC | 3 CO contacts |
| 3RS1800-1HQ00 | 3RS1800-2HQ00 | 24 V AC/DC; 110 ... 120 V AC | | | | | |
| 3RS1800-1HP00 | 3RS1800-2HP00 | 24 V AC/DC; 220 ... 240 V AC | | | | | |
| 3RS1800-1HW01 | 3RS1800-2HW01 | 24 ... 240 V AC/DC | 3 CO contacts, hard gold-plated | 3RQ2000-1CW01 | 3RQ2000-2CW01 | 24 ... 240 V AC/DC | 3 CO contacts, hard gold-plated |
| 3RS1800-1HQ01 | 3RS1800-2HQ01 | 24 V AC/DC; 110 ... 120 V AC | | | | | |
| 3RS1800-1HP01 | 3RS1800-2HP01 | 24 V AC/DC; 220 ... 240 V AC | | | | | |

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## Overview

SIRIUS 3RQ3 coupling relays

**More information**

Homepage, see www.siemens.com/sirius-coupling-relays

Industry Mall, see www.siemens.com/product?3RQ3

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais

Conversion tool, see www.siemens.com/conversion-tool

SIRIUS 3RQ3 coupling relays in narrow design are used for coupling control signals from and to a controller, and they are available in different versions:

- Coupling relays with relay output (not plug-in)
- Coupling relays with plug-in relays
- Coupling relays with semiconductor output (not plug-in)

***Coupling relays with relay output (not plug-in)***

**AC and DC operation**

IEC 60947-5-1

The input and output coupling relays differ with regard to the positioning of the terminals and the LEDs.

***Coupling relays with plug-in relays***

**AC and DC operation**

IEC 60947-1

The coupling relays are plug-in, so the relay can be replaced quickly at the end of its service life without detaching the wiring.

***Coupling relays with semiconductor output (not plug-in)***

**AC and DC operation**

IEC 60947-1, EN 60664-1 and EN 50005;
coupling relays with semiconductor output: EN 60747-5;
programmable logic controllers: IEC 61131-2

The input and output coupling relays differ with regard to the positioning of the terminals and the LEDs.

The coupling relays with semiconductor output have extremely high contact reliability, so they are especially suitable for solid-state systems.

For test purposes, versions are available with manual-off-automatic switches.

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## SIRIUS 3RQ3 coupling relays, narrow design

***Article number schemes***

| Product versions | | Article number |
|---|---|---|
| **Coupling relays with relay output (not plug-in)** | | **3RQ30 □ 8 – □ A □ 0 □** |
| Design and type of output | Output coupler, without manual-off-automatic switch | **1** |
| | Input coupler | **3** |
| Type of electrical connection | Screw terminals | **1** |
| | Spring-loaded terminals (push-in) | **2** |
| Control supply voltage | 24 V AC/DC | **B** |
| | 115 V AC/DC | **E** |
| | 230 V AC/DC | **F** |
| Material of switching contacts | e.g. | |
| | 0 = AgSnO2 | □ |
| | 1 = AgSnO2 hard gold-plated | □ |
| Example | | **3RQ30 1 8 – 1 A B 0 1** |

| Product versions | | Article number |
|---|---|---|
| **Coupling relays with relay output (not plug-in)** | | **3RQ30 1 8 – 2 A □ 0 8 – 0 A □ 0** |
| Railway version with extended operating range 0.7 ... 1.2 x $U_s$ | | |
| Control supply voltage | 24 V DC | **M** |
| | 110 V DC | **N** |
| Standard printed circuit board | | **A** |
| Protective coating on printed circuit board | | **X** |
| Example | | **3RQ30 1 8 – 2 A M 0 8 – 0 A A 0** |

| Product versions | | Article number |
|---|---|---|
| **Coupling relays with plug-in relays** | | **3RQ31 1 8 – □ A □ 0 □** |
| Type of electrical connection | Screw terminals | **1** |
| | Spring-loaded terminals (push-in) | **2** |
| Control supply voltage | 24 V AC/DC | **B** |
| | 115 V AC/DC | **E** |
| | 230 V AC/DC | **F** |
| | 24 V DC | **M** |
| Material of switching contacts | AgSnO2 | **0** |
| | AgSnO2 hard gold-plated | **1** |
| Example | | **3RQ31 1 8 – 1 A B 0 1** |

| Product versions | | Article number | | |
|---|---|---|---|---|
| **Coupling relays with semiconductor output (not plug-in)** | | **3RQ30 □ □ – □ S □ □ 0** | | |
| | Current-carrying capacity of the semiconductor output | | Control supply voltage | Switching voltage of the semiconductor output |
| Output coupler | | | | |
| • Without manual-off-automatic switch | 1 mA ... 0.5 A | **5 0 □ M 5** | 11 ... 30 V DC | 10 ... 60 V DC |
| | 5 mA ... 2 A | **5 2 □ M 3** | 11 ... 30 V DC | 10 ... 30 V DC |
| | 1 mA ... 2 A | **5 2 □ M 4** | 11 ... 30 V DC | 10 ... 60 V DC |
| | 5 mA ... 2 A | **5 2 □ M 5** | 11 ... 30 V DC | 20 ... 264 V AC |
| | 1 mA ... 3 A | **5 3 □ G 3** | 110 ... 230 V AC/DC | 10 ... 30 V DC |
| | 5 mA ... 5 A | **5 5 □ M 3** | 11 ... 30 V DC | 10 ... 30 V DC |
| • With manual-off-automatic switch | 5 mA ... 5 A | **6 5 □ M 3** | 11 ... 30 V DC | 10 ... 30 V DC |
| Input coupler | 10 mA ... 0.5 A | **7 0 □ B 3** | 11 ... 30 V AC/DC | 10 ... 30 V DC |
| | | **7 0 □ G 3** | 110 ... 230 V AC/DC | 10 ... 30 V DC |
| Type of electrical connection | Screw terminals | **1** | | |
| | Spring-loaded terminals (push-in) | **2** | | |
| Example | | **3RQ30 7 0 – 1 S B 3 0** | | |

Note:

The article number schemes show an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Benefits

***General***

- All versions with screw terminals or spring-loaded terminals (push-in technology)
- TOP wiring with spring-loaded terminals (push-in) for quick and reliable wiring
- Low space requirements in the control cabinet thanks to a consistent width of 6.2 mm
- Reduced stock-keeping due to fewer variants
- Clearly visible functional state of the coupling relay by green LED
- Integrated reverse polarity protection and EMC suppressor diode
- Standardized accessories across the entire 3RQ3 series
- Universal bridging option using connecting combs for all terminals
- Galvanic isolation plate for isolating different voltages for neighboring units
- Clip-on labels available as set for individual labeling

***Coupling relays with relay output (not plug-in)***

- Relays fixed in enclosure for increased contact reliability
- Device variants with hard gold-plated contacts, hence high contact reliability at low currents

***Coupling relays with plug-in relays***

- Fast replacement of the relays with existing wiring
- Shorter installation times thanks to certified complete units
- Individual relays available as spare parts
- Device variants with hard gold-plated contacts, hence high contact reliability at low currents

***Coupling relays with semiconductor output (not plug-in)***

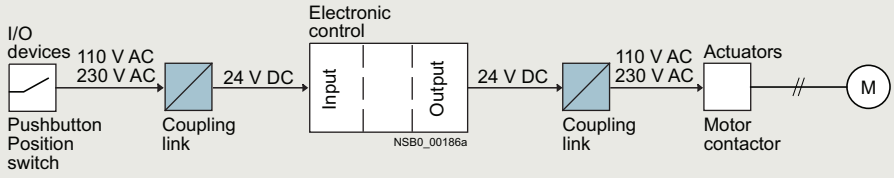
- Long service life since there is no mechanical wear
- High switching frequency thanks to short make-break times
- Vibration-resistant
- No contact bounce
- Extremely high contact reliability
- Noise-free switching
- Low control power required
- Switching of DC and capacitive loads

Note:

With semiconductors, the switching current is not dependent on the inductance of the load, i.e. the switching current for an inductive DC-13 load is the same as that for a DC-12 load. This means that coupling links with a semiconductor output are particularly suitable for inductive loads such as solenoid valves. It is not relevant to specify the number of operating cycles, because this does not affect the endurance of the semiconductor, provided it is not overheated.

## Application

- Electrical separation between the input and output circuit
- Adjustment of different signal levels
- Signal amplification




Application example motor controller

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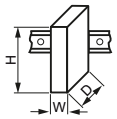
## SIRIUS 3RQ3 coupling relays, narrow design

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16198/td | Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/ps/16198/man<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16198/faq |

***Coupling relays with relay output (not plug-in)***

| Article number | | 3RQ30.8-.AB00 | 3RQ30.8-.AB01 | 3RQ30.8-.AE00 | 3RQ30.8-.AE01 | 3RQ30.8-.AF00 | 3RQ30.8-.AF01 | 3RQ3018-2AM08-0A.0 | 3RQ3018-2AN08-0A.0 |
|---|---|---|---|---|---|---|---|---|---|
| **General technical specifications** | | | | | | | | | |
| **Width x height x depth**  | mm | 6.2 x 93 x 72.5 | | | | | | | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3** | V | 300 | | | | | | | |
| **Max. permissible voltage for protective separation between control circuit and auxiliary circuit** | V | 300 | | | | | | | |
| **Ambient temperature** | | | | | | | | | |
| • During operation | °C | -25 ... +60 | | | | | | -40 ... +70 | |
| • During storage | °C | -40 ... +85 | | | | | | | |
| **Degree of protection IP** | | IP20 | | | | | | | |
| **Version of the fuse link required for short-circuit protection of the auxiliary switch** | | Fuse gG: 4 A | | | | | | | |
| **Operational current of the auxiliary contacts** | | | | | | | | | |
| • At AC-15 | | | | | | | | | |
| - At 24 V | A | 3 | | | | | | | |
| - At 250 V | A | 3 | | | | | | | |
| • At DC-13 | | | | | | | | | |
| - At 24 V | A | 1 | | | | | | | |
| - At 125 V | A | 0.2 | | | | | | | |
| - At 250 V | A | 0.1 | | | | | | | |
| **Contact reliability of the auxiliary contacts** (one contact failure per 100 million) | | 17 V, 5 mA | 5 V, 1 mA | 17 V, 5 mA | 5 V, 1 mA | 17 V, 5 mA | 5 V, 1 mA | 17 V, 5 mA | |
| **Mechanical endurance (operating cycles) typical** | | 10 000 000 | | | | | | | |
| **Electrical endurance (operating cycles) for AC-15 at 250 V typical** | | 100 000 | | | | | | | |
| **Operating range factor of the control supply voltage, rated value** | | | | | | | | | |
| • At AC | | | | | | | | | |
| - At 50 Hz | | 0.8 ... 1.25 | | 0.8 ... 1.1 | | | | -- | |
| - At 60 Hz | | 0.8 ... 1.25 | | 0.8 ... 1.1 | | | | -- | |
| • At DC | | 0.8 ... 1.25 | | 0.8 ... 1.1 | | | | 0.7 ... 1.25 | |
| **Active power input** | W | 0.3 | | 0.5 | | 1 | | 0.3 | 0.6 |
| **Thermal current** | A | 6 | | | | | | | |
| • Note | | -- | | | | | | Derating, see characteristic curves | |

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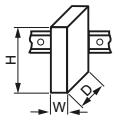
***Coupling relays with plug-in relays***

| Article number | | 3RQ3118-.AB00 | 3RQ3118-.AB01 | 3RQ3118-.AE00 | 3RQ3118-.AE01 | 3RQ3118-.AF00 | 3RQ3118-.AF01 | 3RQ3118-.AM00 | 3RQ3118-.AM01 |
|---|---|---|---|---|---|---|---|---|---|
| **General technical specifications** | | | | | | | | | |
| **Width x height x depth**   | mm | 6.2 x 93 x 76 | | | | | | | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3** | V | 300 | | | | | | | |
| **Max. permissible voltage for protective separation between control circuit and auxiliary circuit** | V | 300 | | | | | | | |
| **Ambient temperature** | | | | | | | | | |
| • During operation | °C | -25 ... +60 | | | | | | | |
| • During storage | °C | -40 ... +85 | | | | | | | |
| **Degree of protection IP** | | IP20 | | | | | | | |
| **Version of the fuse link required for short-circuit protection of the auxiliary switch** | | Fuse gG: 4 A | | | | | | | |
| **Operational current of the auxiliary contacts** | | | | | | | | | |
| • At AC-15 | | | | | | | | | |
| - At 24 V | A | 3 | | | | | | | |
| - At 250 V | A | 3 | | | | | | | |
| • At DC-13 | | | | | | | | | |
| - At 24 V | A | 1 | | | | | | | |
| - At 125 V | A | 0.2 | | | | | | | |
| - At 250 V | A | 0.1 | | | | | | | |
| **Contact reliability of the auxiliary contacts** (one contact failure per 100 million) | | 17 V, 5 mA | 5 V, 1 mA | 17 V, 5 mA | 5 V, 1 mA | 17 V, 5 mA | 5 V, 1 mA | 17 V, 5 mA | 5 V, 1 mA |
| **Mechanical endurance (operating cycles) typical** | | 10 000 000 | | | | | | | |
| **Electrical endurance (operating cycles) for AC-15 at 250 V typical** | | 100 000 | | | | | | | |
| **Operating range factor of the control supply voltage, rated value** | | | | | | | | | |
| • At AC | | | | | | | | | |
| - At 50 Hz | | 0.8 ... 1.25 | | 0.8 ... 1.1 | | | | -- | |
| - At 60 Hz | | 0.8 ... 1.25 | | 0.8 ... 1.1 | | | | -- | |
| • At DC | | 0.8 ... 1.25 | | 0.8 ... 1.1 | | | | 0.8 ... 1.25 | |
| **Active power input** | W | 0.3 | | 0.5 | | 1 | | 0.3 | |
| **Thermal current** | A | 6 | | | | | | | |

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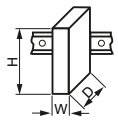
## SIRIUS 3RQ3 coupling relays, narrow design

***Coupling relays with semiconductor output (not plug-in)***

| Article number | | 3RQ3050-.SM50 | 3RQ3052-.SM30 | 3RQ3052-.SM40 | 3RQ3052-.SM50 | 3RQ3053-.SG30 | 3RQ3055-.SM30 | 3RQ3065-.SM30 | 3RQ3070-.SB30 | 3RQ3070-.SG30 |
|---|---|---|---|---|---|---|---|---|---|---|
| **General technical specifications** | | | | | | | | | | |
| **Width x height x depth**  | mm | 6.2 x 93 x 72.5 | | | | | | 6.2 x 93 x 75 | 6.2 x 93 x 72.5 | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3** | V | 50 | | | 300 | | 50 | | | -- |
| **Ambient temperature** | | | | | | | | | | |
| • During operation | °C | -25 ... +60 | | | | | | | | |
| • During storage | °C | -40 ... +85 | | | | | | | | |
| **Degree of protection IP** | | IP20 | | | | | | | | |
| **Switching voltage of the semiconductor output** | | | | | | | | | | |
| • At AC | V | -- | | | 20 ... 264 | -- | | | | |
| • At DC | V | 10 ... 60 | 10 ... 30 | 10 ... 60 | -- | 10 ... 30 | | | | |
| **Current-carrying capacity of the semiconductor output** | | | | | | | | | | |
| • At AC | | -- | | | 5 mA ... 2 A | -- | | | | |
| • At DC | | 1 mA ... 0.5 A | 5 mA ... 2 A | 1 mA ... 2 A | -- | 1 mA ... 3 A | 5 mA ... 5 A | | 10 mA ... 0.5 A | |
| **Operating range factor of the control supply voltage, rated value** | | | | | | | | | | |
| • At AC | | | | | | | | | | |
| - At 50 Hz | | -- | | | | 0.7 ... 1.1 | -- | | 1 ... 1 | 0.7 ... 1.1 |
| - At 60 Hz | | -- | | | | 0.7 ... 1.1 | -- | | 1 ... 1 | 0.7 ... 1.1 |
| • At DC | | 1 ... 1 | | | | 0.7 ... 1.1 | 1 ... 1 | | | 0.7 ... 1.1 |
| **Active power input** | W | 0.3 | | | 0.25 | 0.3 | | | 0.5 | |
| **Thermal current** | A | 0.5 | 2 | | | 3 | 5 | | 0.5 | |

| Article number | 3RQ3...-1.... | 3RQ3...-2.... |
|---|---|---|
| **Type of electrical connection for auxiliary and control circuits** | **Screw terminals** | **Spring-loaded terminals (push-in)** |
| **Type of connectable conductor cross-sections** | | |
| • Solid | 1x (0.25 ... 2.5 $mm^2$) | |
| • Finely stranded | | |
| - Without end sleeves | -- | 1x (0.25 ... 2.5 $mm^2$) |
| - With end sleeves | 1x (0.25 ... 1.5 $mm^2$) | |
| • Solid for AWG cables | 1x (20 ... 14) | |

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## Selection and ordering data

| Type of voltage | Control supply voltage at AC at 50 Hz | at AC at 60 Hz | at DC | Number of CO contacts for auxiliary contacts | Material of switching contacts | Protective coating on printed circuit board | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | V | V | V | | | | | | | | |
| **Coupling relays with relay output (not plug-in)** | | | | | | | | | | | |
| | ***Output coupling links*** | | | | | | | | | | |
| AC/DC | 24 | 24 | 24 | 1 | AgSnO2 | -- | **3RQ3018-☐AB00** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 Hard gold-plated | -- | **3RQ3018-☐AB01** | | 1 | 5 units | 41H |
| | 115 | 115 | 115 | 1 | AgSnO2 | -- | **3RQ3018-☐AE00** | | 1 | 5 units | 41H |
| | 230 | 230 | 230 | 1 | AgSnO2 | -- | **3RQ3018-☐AF00** | | 1 | 5 units | 41H |
| DC | -- | -- | 24 | 1 | AgSnO2 | -- | **3RQ3018-2AM08-0AA0** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 | Yes NEW | **3RQ3018-2AM08-0AX0** | | | | |
| | | | 110 | 1 | AgSnO2 | -- | **3RQ3018-2AN08-0AA0** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 | Yes NEW | **3RQ3018-2AN08-0AX0** | | | | |
| | ***Input coupling links*** | | | | | | | | | | |
| AC/DC | 24 | 24 | 24 | 1 | AgSnO2 | -- | **3RQ3038-☐AB00** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 Hard gold-plated | -- | **3RQ3038-☐AB01** | | 1 | 5 units | 41H |
| | 115 | 115 | 115 | 1 | AgSnO2 | -- | **3RQ3038-☐AE00** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 Hard gold-plated | -- | **3RQ3038-☐AE01** | | 1 | 5 units | 41H |
| | 230 | 230 | 230 | 1 | AgSnO2 | -- | **3RQ3038-☐AF00** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 Hard gold-plated | -- | **3RQ3038-☐AF01** | | 1 | 5 units | 41H |
| **Coupling relays with plug-in relays** | | | | | | | | | | | |
| | ***Output coupling links*** | | | | | | | | | | |
| AC/DC | 24 | 24 | 24 | 1 | AgSnO2 | -- | **3RQ3118-☐AB00** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 Hard gold-plated | -- | **3RQ3118-☐AB01** | | 1 | 5 units | 41H |
| | 115 | 115 | 115 | 1 | AgSnO2 | -- | **3RQ3118-☐AE00** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 Hard gold-plated | -- | **3RQ3118-☐AE01** | | 1 | 5 units | 41H |
| | 230 | 230 | 230 | 1 | AgSnO2 | -- | **3RQ3118-☐AF00** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 Hard gold-plated | -- | **3RQ3118-☐AF01** | | 1 | 5 units | 41H |
| DC | -- | -- | 24 | 1 | AgSnO2 | -- | **3RQ3118-☐AM00** | | 1 | 5 units | 41H |
| | | | | | AgSnO2 Hard gold-plated | -- | **3RQ3118-☐AM01** | | 1 | 5 units | 41H |

3RQ30.8-2....

3RQ3118-2....

**Type of electrical connection**

- Screw terminals
- Spring-loaded terminals (push-in)

1
2

5

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## SIRIUS 3RQ3 coupling relays, narrow design

| Type of voltage | Control supply voltage at AC at 50 Hz | Control supply voltage at AC at 60 Hz | Control supply voltage at DC | Current-carrying capacity of the semiconductor output at AC | Current-carrying capacity of the semiconductor output at DC | Operating mode selectable via switch position | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Coupling relays with semiconductor output (not plug-in)** | | | | | | | | | | | |
| ***Output coupling links*** | | | | | | | | | | | |
| 3RQ3050-2SM50 | | | | | | | | | | | |
| DC | -- | -- | 11 ... 30 V | -- | 1 mA ... 0.5 A | -- | **3RQ3050-☐SM50** | | 1 | 5 units | 41H |
| | | | | | 5 mA ... 2 A | -- | **3RQ3052-☐SM30** | | 1 | 5 units | 41H |
| | | | | | 1 mA ... 2 A | -- | **3RQ3052-☐SM40** | | 1 | 5 units | 41H |
| | | | | 5 mA ... 2 A | -- | -- | **3RQ3052-☐SM50** | | 1 | 5 units | 41H |
| | | | | -- | 5 mA ... 5 A | -- | **3RQ3055-☐SM30** | | 1 | 5 units | 41H |
| | | | | | | Manual/ Off/ Automatic | **3RQ3065-☐SM30** | | 1 | 5 units | 41H |
| AC/DC | 110 ... 230 V | 110 ... 230 V | 110 ... 230 V | -- | 1 mA ... 3 A | -- | **3RQ3053-☐SG30** | | 1 | 5 units | 41H |
| ***Input coupling links*** | | | | | | | | | | | |
| AC/DC | 11 ... 30 V | 11 ... 30 V | 11 ... 30 V | -- | 10 mA ... 0.5 A | -- | **3RQ3070-☐SB30** | | 1 | 5 units | 41H |
| | 110 ... 230 V | 110 ... 230 V | 110 ... 230 V | -- | 10 mA ... 0.5 A | -- | **3RQ3070-☐SG30** | | 1 | 5 units | 41H |

**Type of electrical connection**

- Screw terminals
- Spring-loaded terminals (push-in)

1
2



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Galvanic isolation plates** | | | | | |
| 3RQ3900-0A<br>For electrical separation of different potentials when devices of different types are installed side by side | **3RQ3900-0A** | | 1 | 10 units | 41H |
| **Connecting combs** | | | | | |
| 3RQ3901-0B<br>For linking the same potentials, current carrying capacity for infeed max. 6 A | | | | | |
| • 2-pole | **3RQ3901-0A** | | 1 | 10 units | 41H |
| • 4-pole | **3RQ3901-0B** | | 1 | 10 units | 41H |
| • 8-pole | **3RQ3901-0C** | | 1 | 10 units | 41H |
| • 16-pole | **3RQ3901-0D** | | 1 | 10 units | 41H |
| **Clip-on labels**[1] | | | | | |
| 3RQ3902-0A<br>For terminal and equipment labeling, white | | | | | |
| • 5 x 5 mm | **3RQ3902-0A** | | 100 | 2000 units | 41H |
| • 6 x 12 mm (for 3RQ31 only) | **3RQ3902-0B** | | 100 | 1200 units | 41H |
| **Tools for opening spring-loaded terminals** | | | | | |
| 3RA2908-1A<br>**Screwdriver**<br>For all SIRIUS devices with spring-loaded terminals<br>3.0 mm x 0.5 mm, length approx. 200 mm, titanium gray/black, partially insulated | **Spring-loaded terminals (push-in)**<br>**3RA2908-1A** | | 1 | 1 unit | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from:
Conta-Clip Verbindungstechnik GmbH
(see page 16/18).

| Coupling relays with plug-in relays | Control supply voltage | Material of switching contacts | Number of CO contacts for auxiliary contacts | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| Type | V | | | | | | | |
| **Replacement modules for 3RQ3118 coupling relays with plug-in relays** | | | | | | | | |
| 3RQ3118-.AM00 | 24 DC | AgSnO2 | 1 | **3TX7014-7BM00** | | 1 | 15 units | 41H |
| 3RQ3118-.AM01 | | AgSnO2 Hard gold-plated | | **3TX7014-7BM02** | | 1 | 15 units | 41H |
| 3RQ3118-.AB00 | 24 AC/DC | AgSnO2 | 1 | **3TX7014-7BM00** | | 1 | 15 units | 41H |
| 3RQ3118-.AB01 | | AgSnO2 Hard gold-plated | | **3TX7014-7BM02** | | 1 | 15 units | 41H |
| 3RQ3118-.AE00 | 115 AC/DC | AgSnO2 | 1 | **3TX7014-7BP00** | | 1 | 20 units | 41H |
| 3RQ3118-.AF00 | 230 AC/DC | AgSnO2 | | | | | | |
| 3RQ3118-.AE01 | 115 AC/DC | AgSnO2 Hard gold-plated | 1 | **3TX7014-7BP02** | | 1 | 20 units | 41H |
| 3RQ3118-.AF01 | 230 AC/DC | AgSnO2 Hard gold-plated | | | | | | |

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## LZS coupling relays with plug-in relays

### Overview

| More information |
|---|
| Homepage, see www.siemens.com/sirius-coupling-relays |
| Industry Mall, see www.siemens.com/product?3RQ_3RS_LZ |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais |

LZS coupling relays with plug-in relays can be ordered as complete units or as individual modules for customer assembly.

***Function***

The coupling relays with semiconductor output have low power consumption and are therefore particularly well-suited to solid-state systems. In the versions equipped with LEDs, these indicate the switching state. The LZS:PT/MT coupling relays have a test button. This can be used to force the relays into the switching state and to lock it without electrical control. This is indicated by a raised petrol-colored lever.

***Control with solid-state output***

In the case of solid-state outputs (e.g. proximity switch) with overload and short-circuit protection, you must make allowance during configuration for the temporarily flowing capacitor charging currents! This is possible, for example, by using a suitable LZS coupling relay with plug-in relay.

***Surge suppression***

The 24 V DC relays LZX:RT and LZX:PT with LEDs can be supplied with, all others without integral surge suppression (freewheeling diode connected in parallel with A1/A2). The positive control supply voltage must be connected to coil terminal A1.

***Mounting***

The relays are plugged into the base and this is snapped onto a TH 35 DIN rail according to IEC 60715.

A fixing bracket can be ordered for the MT series that additionally fixes the relay into a plug-in socket (under conditions of increased mechanical stress). For the RT and PT series, a combined fixing and ejection bracket is available which can be used to disassemble the relays when they are mounted side-by-side.

They can be mounted as required.

***Logical separation***

The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for coil. Logical separation is not necessarily protective separation.

***Protective separation***

For protective separation, transfer of the voltage of one circuit to another circuit is prevented to a suitable degree of safety (requirements and tests are described in IEC 60947-1 in Annex N).

***Notes on the previous LZX series***

The lower-cost complete units of the LZS series are fully compatible with the corresponding complete units of the previous LZX series.

The LZX plug-in relays are available unchanged and are used accordingly in both the LZS and the LZX series.

Note:

Due to differences in geometry, the LED modules, plug-in sockets, fixing brackets and labels can be combined and/or used only in the respective series, LZS or LZX.

The LZS series offers not only service-proven screw connections but also versions with plug-in terminals (push-in).

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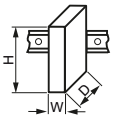
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16204/td | Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16204/man |

| Relay type | | | **LZX:RT print relay, 8-pole, (12.7 mm) 1 CO/2 CO** | | | | **LZX:PT industrial relay, 8-, 11- and 14-pole, (22.5 mm) 2 CO/3 CO/4 CO** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **General data** | | | | | | | | | | |
| **Dimensions (W x H x D)** |  | | | | | | | | | |
| • LZS:RT.A4/LZS:PT.A5 | | mm | 15.5 x 78 x 71 | | | | 28 x 74 x 72 | | | |
| • LZS:RT.B4/LZS:PT.B5 | | mm | 15.5 x 77 x 71 | | | | 28 x 77 x 79 | | | |
| • LZS:RT.D4/LZS:PT.D5 | | mm | 15.5 x 98 x 71 | | | | 28 x 98 x 79 | | | |
| **Rated control supply voltage $U_s$** [1] | | V | 24 DC | 24 AC | 115 AC | 230 AC | 24 DC | 24 AC | 115 AC | 230 AC |
| **Rated insulation voltage $U_i$** (Pollution degree 3) | | V | 250 | | | | | | | |
| **Overvoltage category** According to IEC 60664-1 | | | III | | | | | | | |
| **Protective separation** Between coil and contacts According to IEC 60947-1, Annex N | | | Up to 250 V (with plug-in socket LZS:RT78726) No (for complete units with standard socket) | | | | No | | | |
| **Degree of protection** | | | | | | | | | | |
| • Relays | | | IP67 | | | | IP50 | | | |
| • Bases | | | IP20 | | | | | | | |
| **Permissible ambient temperature** | | | | | | | | | | |
| • During operation | | °C | -40 ... +70 | | | | | | | |
| • During storage | | °C | -40 ... +80 | | | | | | | |
| **Conductor cross-sections** | | | | | | | | | | |
| Connection type | | | **Screw terminals** | | | | | | | |
| • Solid | | $mm^2$ | 2 x 2.5 | | | | | | | |
| • Finely stranded with end sleeve | | $mm^2$ | 2 x 1.5 | | | | | | | |
| • Corresponding opening tool | | | Screwdriver, size 3.0 ... 3.5 mm x 0.5 mm (3RA2908-1A) | | | | | | | |
| Connection type | | | **Plug-in terminals (push-in)** | | | | | | | |
| • Solid | | $mm^2$ | 1 x (0.75 ... 1.5), 2 x (0.75 ... 1.0), 2 x 1.5 | | | | | | | |
| • Finely stranded without end sleeve | | $mm^2$ | 1 x (0.75 ... 1.5), 2 x (0.75 ... 1.0), 2 x 1.5 | | | | | | | |
| • Finely stranded with end sleeve | | $mm^2$ | 1 x (0.75 ... 1.0), 2 x 0.75, 1 x 1.5 | | | | | | | |

[1] AC voltages, 50 Hz; for 60 Hz operation, the lower response value must be increased by 10%; the power loss will decrease slightly.

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## LZS coupling relays with plug-in relays

| Relay type | | LZX:RT print relay, 8-pole, (12.7 mm) 1 CO/2 CO | | | | LZX:PT industrial relay, 8-, 11- and 14-pole, (22.5 mm) 2 CO/3 CO/4 CO | | | |
|---|---|---|---|---|---|---|---|---|---|
| Rated control supply voltage $U_s$ [1] | V | 24 DC | 24 AC | 115 AC | 230 AC | 24 DC | 24 AC | 115 AC | 230 AC |
| **Control side** | | | | | | | | | |
| **Operating range factor** | | 0.9 ... 1.4 | 0.9 ... 1.1 | | | 0.9 ... 1.4 | 0.9 ... 1.1 | | |
| **Power consumption at $U_s$** | | | | | | | | | |
| • AC | VA | -- | 0.75 | | | -- | 1 | | |
| • DC | W | 0.4 | -- | | | 0.75 | -- | | |
| **Release voltage** | V | 2.4 | 3.6 | 17.3 | 34.5 | 2.4 | 7.2 | 34.5 | 69 |
| **Protection circuit** | | Freewheeling diode for complete unit | -- | | | Freewheeling diode in LED module | -- | | |
| **Load side** | | | | | | | | | |
| **Switching voltage** AC/DC | V | 24 ... 250 | | | | | | | |
| **Rated currents** [2] | | | | | | | | | |
| • Conventional thermal current $I_{th}$ | | | | | | | | | |
| - 1 CO contact | A | 16 | | | | -- | | | |
| - 2 CO contacts | A | 8 | | | | 12 | | | |
| - 3 CO contacts | A | -- | | | | 10 | | | |
| - 4 CO contacts | A | -- | | | | 6 | | | |
| • Rated operational current $I_e$/AC-15 according to utilization categories (IEC 60947-5-1) | | | | | | | | | |
| - 1 CO contact | A | 6 | 3 | | | 4 | 2 | | |
| - 2 CO contacts | A | 3 | | | | 4 | 2 | | |
| - 3 CO contacts | A | -- | | | | 4 | 2 | | |
| - 4 CO contacts | A | -- | | | | 4 | 2 | | |
| • Rated operational current $I_e$/DC-13 with suppressor diode according to utilization categories (IEC 60947-5-1) | A | 2 at 24 V, 0.27 at 230 V | | | | PT2, PT3, PT5: 4 at 24 V, 0.5 at 230 V | | | |
| **Short-circuit protection** | | | | | | | | | |
| Short-circuit test with fuse links of operational class gG with short-circuit current $I_k$ = 1 kA according to IEC 60947-5-1 | | | | | | | | | |
| • DIAZED, type 5SB | A | 10 | | | | 6 | | | |
| **Min. contact load** (reliability: 1 ppm) | | Standard 17 V, 10 mA; hard gold-plated 17 V/0.1 mA | | | | Standard 17 V, 10 mA; hard gold-plated 20 V/1 mA | | | |
| **Mechanical endurance** | | | | | | | | | |
| • 1 CO contact | Operating cycles | $30 \times 10^6$ | $10 \times 10^6$ | $1 \times 10^5$ | $7 \times 10^4$ | $30 \times 10^6$ | $20 \times 10^6$ | | |
| • 2 CO contacts | Operating cycles | $30 \times 10^6$ | $5 \times 10^6$ | $1 \times 10^5$ | $8 \times 10^4$ | $30 \times 10^6$ | $20 \times 10^6$ | | |
| • 3 CO contacts | Operating cycles | -- | | | | $30 \times 10^6$ | $20 \times 10^6$ | | |
| • 4 CO contacts | Operating cycles | -- | | | | $30 \times 10^6$ | $20 \times 10^6$ | | |
| **Electrical endurance** (resistive load at 250 V AC) | | | | | | | | | |
| • 1 CO contact | Operating cycles | $1 \times 10^5$ | $7 \times 10^4$ | | | -- | | | |
| • 2 CO contacts | Operating cycles | $1 \times 10^5$ | $8 \times 10^4$ | | | $180 \times 10^3$ | | | |
| • 3 CO contacts | Operating cycles | -- | | | | $180 \times 10^3$ | | | |
| • 4 CO contacts | Operating cycles | -- | | | | $250 \times 10^3$ | | | |

1) AC voltages, 50 Hz; for 60 Hz operation, the lower response value must be increased by 10%; the power loss will decrease slightly.
2) Capacitive loads can result in micro-welding on the contacts.

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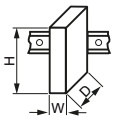
| Relay type | | | LZS industrial relay: MT, 11-pole (35.5 mm) 3 CO contacts | | | |
|---|---|---|---|---|---|---|
| **General data** | | | | | | |
| **Dimensions (W x H x D)** |  | mm | 36 x 69 x 36 | | | |
| **Rated control supply voltage $U_s$**[1] | | V | 24 DC | 24 AC | 115 AC | 230 AC |
| **Rated insulation voltage $U_i$**<br>(Pollution degree 3) | | V | 250 | | | |
| **Overvoltage category**<br>According to IEC 60664-1 | | | III | | | |
| **Protective separation**<br>Between coil and contacts<br>According to IEC 60947-1, Annex N | | | No | | | |
| **Degree of protection of relays/bases** | | | | | | |
| • Relays | | | IP50 | | | |
| • Bases | | | IP20 | | | |
| **Permissible ambient temperature** | | | | | | |
| • During operation | | °C | -40 ... +60 | -45 ... +50 | | |
| • During storage | | °C | -45 ... +80 | | | |
| **Conductor cross-sections** | | | | | | |
| Connection type | | | **Screw terminals** | | | |
| • Solid | | $mm^2$ | 2 x 2.5 | | | |
| • Finely stranded with or without end sleeve | | $mm^2$ | 2 x 1.5 | | | |
| • Corresponding opening tool | | | Screwdriver, size 1 or Pozidriv 1 | | | |
| **Control side** | | | | | | |
| **Operating range** | | V | 18 ... 38 | 19.2 ... 38 | 92 ... 137 | 184 ... 264 |
| **Power consumption** | | | | | | |
| • AC | | VA | -- | 2.3 | | |
| • DC | | W | 1.2 | -- | | |
| **Release voltage** | | V | 2.4 | 9.6 | 46 | 92 |
| **Protection circuit** | | | -- | | | |
| **Load side** | | | | | | |
| **Switching voltage** | | | | | | |
| • AC/DC | | V | 24 ... 250 | | | |
| **Rated currents**[2] | | | | | | |
| • Conventional thermal current $I_{th}$ | | A | 10 | | | |
| • Rated operational current $I_e$/DC-13 according to utilization categories (IEC 60947-5-1) | | A | 2 at 24 V,<br>0.27 at 230 V | | | |
| • Rated operational current $I_e$/AC-15 according to utilization categories (IEC 60947-5-1) | | A | 5 at 24 V and 230 V | | | |
| **Short-circuit protection** | | | | | | |
| Short-circuit test with fuse links of operational class gG with short-circuit current $I_k$ = 1 kA according to IEC 60947-5-1 | | | | | | |
| • DIAZED, type 5SB | | A | 10 | | | |
| **Min. contact load**<br>(reliability: 1 ppm) | | | 12 V DC/10 mA | | | |
| **Mechanical endurance** | | Operating cycles | $20 \times 10^6$ | | | |
| **Electrical endurance**<br>(resistive load at 250 V AC) | | Operating cycles | $3 \times 10^5$ | | | |

1) AC voltages, 50 Hz; for 60 Hz operation, the lower response value must be increased by 10%; the power loss will decrease slightly.

2) Capacitive loads can result in micro-welding on the contacts.

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## LZS coupling relays with plug-in relays

### Selection and ordering data

| Version | Rated control supply voltage $U_s$ at 50/60 Hz AC | Contacts, number of CO contacts | Width | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | V | | mm | | | | | |
| **Complete units, 11- and 14-pole, PT series** | | | | | | | | |
| LZS:PT3A5L24 | | | | | | | | |
| **Complete units with plug-in socket**<br>For snap-on mounting on TH 35 DIN rail<br>Comprising:<br>• Coupling relays with plug-in relays<br>• Standard plug-in socket with screw terminals<br>• LED module (24 V DC version: LED module with freewheeling diode)<br>• Fixing/ejection brackets<br>• Labels | | | | **Screw terminals** | | | | |
| 3 CO contacts | 24 DC | 3 | 28 | **LZS:PT3A5L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:PT3A5R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:PT3A5S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:PT3A5T30** | | 1 | 5 units | 41H |
| 4 CO contacts | 24 DC | 4 | 28 | **LZS:PT5A5L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:PT5A5R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:PT5A5S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:PT5A5T30** | | 1 | 5 units | 41H |
| **Complete units with plug-in socket**<br>**With logical separation**<br>For snap-on mounting on TH 35 DIN rail<br>Comprising:<br>• Coupling relays with plug-in relays<br>• Plug-in socket with logical separation and screw terminals<br>• LED module (24 V DC version: LED module with freewheeling diode)<br>• Fixing/ejection brackets<br>• Labels | | | | | | | | |
| 4 CO contacts | 24 DC | 4 | 28 | **LZS:PT5B5L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:PT5B5R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:PT5B5S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:PT5B5T30** | | 1 | 5 units | 41H |
| **Complete units, 8- and 14-pole, PT series** | | | | | | | | |
| LZS:PT5D5L24 | | | | | | | | |
| **Complete units with plug-in socket**<br>**With logical separation**<br>For snap-on mounting on TH 35 DIN rail<br>Comprising:<br>• Coupling relays with plug-in relays<br>• Plug-in socket with logical separation and plug-in terminals (push-in)<br>• LED module (24 V DC version: LED module with freewheeling diode)<br>• Fixing/ejection brackets<br>• Labels | | | | **Plug-in terminals (push-in)** | | | | |
| 2 CO contacts | 24 DC | 2 | 28 | **LZS:PT2D5L24** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:PT2D5T30** | | 1 | 5 units | 41H |
| 4 CO contacts | 24 DC | 4 | 28 | **LZS:PT5D5L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:PT5D5R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:PT5D5S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:PT5D5T30** | | 1 | 5 units | 41H |

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Version | Rated control supply voltage $U_s$ at 50/60 Hz AC | Contacts, number of CO contacts | Width | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | V | | mm | | | | | |
| **Individual modules for customer assembly, PT series** | | | | | | | | |
| ***Industrial relays, 8-, 11-, and 14-pole*** | | | | | | | | |
| **Mini industrial relays** | | | | | | | | |
| • With test bracket and mechanical switch position indicator, without LED[1)] | | | | | | | | |
| | 24 DC | 2 | 22.5 | **LZX:PT270024** | | 1 | 1 unit | 41H |
| | | 3 | | **LZX:PT370024** | | 1 | 1 unit | 41H |
| | | 4 | | **LZX:PT570024** | | 1 | 1 unit | 41H |
| | 24 AC | 2 | 22.5 | **LZX:PT270524** | | 1 | 1 unit | 41H |
| | | 3 | | **LZX:PT370524** | | 1 | 1 unit | 41H |
| | | 4 | | **LZX:PT570524** | | 1 | 1 unit | 41H |
| | 115 AC | 2 | 22.5 | **LZX:PT270615** | | 1 | 1 unit | 41H |
| | | 3 | | **LZX:PT370615** | | 1 | 1 unit | 41H |
| | | 4 | | **LZX:PT570615** | | 1 | 1 unit | 41H |
| | 230 AC | 2 | 22.5 | **LZX:PT270730** | | 1 | 1 unit | 41H |
| | | 3 | | **LZX:PT370730** | | 1 | 1 unit | 41H |
| | | 4 | | **LZX:PT570730** | | 1 | 1 unit | 41H |
| • With hard gold-plating | | | | | | | | |
| | 24 DC<br>230 AC | 4 | 22.5 | **LZX:PT580024**<br>**LZX:PT580730** | | 1<br>1 | 1 unit<br>1 unit | 41H<br>41H |
| • Without test bracket | | | | | | | | |
| | 24 DC<br>230 AC | 4 | 22.5 | **LZX:PT520024**<br>**LZX:PT520730** | | 1<br>1 | 1 unit<br>1 unit | 41H<br>41H |
| ***Plug-in sockets for PT relays*** | | | | | | | | |
| **Standard plug-in sockets**<br>For mounting on TH 35 DIN rail | | | | **Screw terminals** | | | | |
| | -- | 2 | 28 | **LZS:PT78720** | | 1 | 1 unit | 41H |
| | | 3 | | **LZS:PT78730** | | 1 | 1 unit | 41H |
| | | 4 | | **LZS:PT78740** | | 1 | 1 unit | 41H |
| **Plug-in sockets with logical separation**<br>For mounting on TH 35 DIN rail | | | | | | | | |
| | -- | 2 | 28 | **LZS:PT78722** | | 1 | 1 unit | 41H |
| | | 4 | | **LZS:PT78742** | | 1 | 1 unit | 41H |
| **Plug-in sockets with logical separation**<br>For mounting on TH 35 DIN rail | | | | **Plug-in terminals (push-in)** | | | | |
| | -- | 2 | 28 | **LZS:PT7872P** | | 1 | 1 unit | 41H |
| | | 4 | | **LZS:PT7874P** | | 1 | 1 unit | 41H |

LZX:PT370024

LZS:PT78740

LZS:PT78722

LZS:PT7874P

[1)] The test bracket is designed to be non-latching. If the test bracket is pressed further until 90° has been reached, two small lugs break off and the test bracket can be latched in position.

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

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## LZS coupling relays with plug-in relays

| Version | Rated control supply voltage $U_s$ at 50/60 Hz AC | Contacts, number of CO contacts | Width | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | V | | mm | | | | | |
| **Individual modules for customer assembly, PT series** | | | | | | | | |
| ***More individual modules*** | | | | | | | | |
| **LED modules** | | | | | | | | |
| • Red | | | | | | | | |
| - With freewheeling diode | 24 DC | -- | 12.5 | **LZS:PTML0024** | | 1 | 1 unit | 41H |
| - Without freewheeling diode | 24 AC/DC | | | **LZS:PTML0524** | | 1 | 1 unit | 41H |
| | 110 … 230 AC | | | **LZS:PTML0730** | | 1 | 1 unit | 41H |
| • Green | | | | | | | | |
| - With freewheeling diode | 24 DC | -- | 12.5 | **LZS:PTMG0024** | | 1 | 1 unit | 41H |
| - Without freewheeling diode | 24 AC/DC | | | **LZS:PTMG0524** | | 1 | 1 unit | 41H |
| | 110 … 230 AC | | | **LZS:PTMG0730** | | 1 | 1 unit | 41H |
| **Fixing/ejection brackets for PT base With logical separation** | | | | | | | | |
| Screw terminals and plug-in terminals (push-in) | -- | -- | 26 | **LZS:PT17021** | | 100 | 10 units | 41H |
| **Fixing/ejection brackets for standard plug-in socket Without logical separation** | | | | | | | | |
| Screw terminals | -- | -- | 26 | **LZS:PT17024** | | 100 | 10 units | 41H |
| **Labels** | | | | | | | | |
| | -- | -- | 26 | **LZS:PT17040** | | 100 | 10 units | 41H |
| **RC elements** | | | | | | | | |
| | 6 ... 60 AC | -- | 26 | **LZS:PTMU0524** | | 1 | 1 unit | 41H |
| | 110 … 230 AC | | | **LZS:PTMU0730** | | 1 | 1 unit | 41H |
| **Freewheeling diodes with connection to A1** | | | | | | | | |
| | 6 … 230 DC | -- | 26 | **LZS:PTMT00A0** | | 1 | 1 unit | 41H |
| **Connecting combs for PT screw base** 6-pole, 10 A current-carrying capacity, natural-colored | | | | | | | | |
| | -- | -- | -- | **LZS:PT170R6** | | 1 | 10 units | 41H |
| **Connecting brackets for PT push-in base** 2-pole, 10 A current-carrying capacity, natural-colored | | | | | | | | |
| | -- | -- | -- | **LZS:PT170P1** | | 1 | 10 units | 41H |
| **Individual modules for customer assembly, MT series** | | | | | | | | |
| ***Industrial relays, 11-pole*** | | | | | | | | |
| **Industrial relays with test bracket** | | | | | | | | |
| Without LED | 24 DC | 3 | 35.5 | **LZX:MT321024** | | 1 | 1 unit | 41H |
| With LED | | | | **LZX:MT323024** | | 1 | 1 unit | 41H |
| Without LED | 24 AC | 3 | 35.5 | **LZX:MT326024** | | 1 | 1 unit | 41H |
| With LED | | | | **LZX:MT328024** | | 1 | 1 unit | 41H |
| Without LED | 115 AC | 3 | 35.5 | **LZX:MT326115** | | 1 | 1 unit | 41H |
| With LED | | | | **LZX:MT328115** | | 1 | 1 unit | 41H |
| Without LED | 230 AC | 3 | 35.5 | **LZX:MT326230** | | 1 | 1 unit | 41H |
| With LED | | | | **LZX:MT328230** | | 1 | 1 unit | 41H |
| **Plug-in sockets** For mounting on TH 35 DIN rail | | | | **Screw terminals** | | | | |
| | -- | -- | 38 | **LZS:MT78750** | | 1 | 1 unit | 41H |
| **Fixing brackets** | | | | | | | | |
| | -- | -- | 38 | **LZS:MT28800** | | 1 | 1 unit | 41H |

LZS:PTML0024

LZS:PT17021

LZS:PT17024

LZS:PT17040

LZS:PTMU0730

LZX:MT326024

LZS:MT78750

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

SITOP DC power supplies such as 6EP1331-5BA00 or 6EP1331-5BA10 can be used for unavailable coil voltages, see page 15/1 or Catalog KT 10.1.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Version | Rated control supply voltage $U_s$ at 50/60 Hz AC | Contacts, number of CO contacts | Width | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | V | | mm | | | | | |
| **Complete units, 8-pole, 5 mm pinning, RT series** | | | | | | | | |
| LZS:RT4A4T30 | | | | | | | | |
| **Complete units with standard plug-in socket** For snap-on mounting on TH 35 DIN rail Comprising: • Coupling relays with plug-in relays • Standard plug-in socket with screw terminals • LED module (24 V DC version: LED module with freewheeling diode) • Fixing/ejection brackets • Labels | | | | **Screw terminals** | | | | |
| 1 CO contact | 24 DC | 1 | 15.5 | **LZS:RT3A4L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:RT3A4R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:RT3A4S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:RT3A4T30** | | 1 | 5 units | 41H |
| 2 CO contacts | 24 DC | 2 | 15.5 | **LZS:RT4A4L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:RT4A4R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:RT4A4S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:RT4A4T30** | | 1 | 5 units | 41H |
| LZS:RT4B4T30 | | | | | | | | |
| **Complete units with plug-in socket With logical separation** For snap-on mounting on TH 35 DIN rail Comprising: • Coupling relays with plug-in relays • Plug-in socket with logical separation and screw terminals • LED module (24 V DC version: LED module with freewheeling diode) • Fixing/ejection brackets • Labels | | | | | | | | |
| 1 CO contact | 24 DC | 1 | 15.5 | **LZS:RT3B4L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:RT3B4R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:RT3B4S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:RT3B4T30** | | 1 | 5 units | 41H |
| 2 CO contacts | 24 DC | 2 | 15.5 | **LZS:RT4B4L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:RT4B4R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:RT4B4S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:RT4B4T30** | | 1 | 5 units | 41H |
| LZS:RT3D4L24 | | | | | | | | |
| **Complete units with plug-in socket With logical separation** For snap-on mounting on TH 35 DIN rail Comprising: • Coupling relays with plug-in relays • Plug-in socket with logical separation and plug-in terminals (push-in) • LED module (24 V DC version: LED module with freewheeling diode) • Fixing/ejection brackets • Labels | | | | **Plug-in terminals (push-in)** | | | | |
| 1 CO contact | 24 DC | 1 | 15.5 | **LZS:RT3D4L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:RT3D4R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:RT3D4S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:RT3D4T30** | | 1 | 5 units | 41H |
| 2 CO contacts | 24 DC | 2 | 15.5 | **LZS:RT4D4L24** | | 1 | 5 units | 41H |
| | 24 AC | | | **LZS:RT4D4R24** | | 1 | 5 units | 41H |
| | 115 AC | | | **LZS:RT4D4S15** | | 1 | 5 units | 41H |
| | 230 AC | | | **LZS:RT4D4T30** | | 1 | 5 units | 41H |

Note:

Logical separation: The terminals for the contacts and the terminals for the coil are arranged on separate levels, e.g. above for contacts and below for the coil. Logical separation is not necessarily protective separation.

Protective separation: Protective separation prevents voltage of one circuit affecting another circuit with sufficient protection (IEC 61140).

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## LZS coupling relays with plug-in relays

| Version | Rated control supply voltage $U_s$ at 50/60 Hz AC | Contacts, number of CO contacts | Width | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | V | | mm | | | | | |
| **Individual modules for customer assembly, RT series** | | | | | | | | |
| ***Print relays, 8-pole, 5 mm pinning*** | | | | | | | | |
| **Print relays**<br>With hard gold-plating<br>Version with 1 CO contact | | | | | | | | |
| | 24 DC | 1 | 12.7 | **LZX:RT315024** | | 1 | 1 unit | 41H |
| | 230 AC | | | **LZX:RT315730** | | 1 | 1 unit | 41H |
| **Print relays**<br>Version with 1 CO contact | | | | | | | | |
| | 24 DC | 1 | 12.7 | **LZX:RT314024** | | 1 | 1 unit | 41H |
| | 24 AC | | | **LZX:RT314524** | | 1 | 1 unit | 41H |
| | 115 AC | | | **LZX:RT314615** | | 1 | 1 unit | 41H |
| | 230 AC | | | **LZX:RT314730** | | 1 | 1 unit | 41H |
| Version with 2 CO contacts | | | | | | | | |
| | 12 DC | 2 | 12.7 | **LZX:RT424012** | | 1 | 1 unit | 41H |
| | 24 DC | | | **LZX:RT424024** | | 1 | 1 unit | 41H |
| | 24 AC | | | **LZX:RT424524** | | 1 | 1 unit | 41H |
| | 115 AC | | | **LZX:RT424615** | | 1 | 1 unit | 41H |
| | 230 AC | | | **LZX:RT424730** | | 1 | 1 unit | 41H |
| **Standard plug-in sockets**<br>For mounting on TH 35 DIN rail | | | | **Screw terminals** | | | | |
| | -- | -- | 15.5 | **LZS:RT78725** | | 1 | 1 unit | 41H |
| **Plug-in sockets with logical separation**<br>For mounting on TH 35 DIN rail | | | | | | | | |
| | -- | -- | 15.5 | **LZS:RT78726** | | 1 | 1 unit | 41H |
| **Plug-in sockets with logical separation**<br>For mounting on TH 35 DIN rail | | | | **Plug-in terminals (push-in)** | | | | |
| | -- | -- | 15.5 | **LZS:RT7872P** | | 1 | 1 unit | 41H |
| **LED modules** | | | | | | | | |
| • Red | | | | | | | | |
| With freewheeling diode | 24 DC | -- | 15.5 | **LZS:PTML0024** | | 1 | 1 unit | 41H |
| Without freewheeling diode | 24 AC/DC | -- | | **LZS:PTML0524** | | 1 | 1 unit | 41H |
| | 110 ... 230 AC | -- | | **LZS:PTML0730** | | 1 | 1 unit | 41H |
| • Green | | | | | | | | |
| With freewheeling diode | 24 DC | -- | 15.5 | **LZS:PTMG0024** | | 1 | 1 unit | 41H |
| Without freewheeling diode | 24 AC/DC | -- | | **LZS:PTMG0524** | | 1 | 1 unit | 41H |
| | 110 ... 230 AC | -- | | **LZS:PTMG0730** | | 1 | 1 unit | 41H |
| **Fixing/ejection brackets**<br>For RT base | | | | | | | | |
| | -- | -- | 15.5 | **LZS:RT17016** | | 100 | 10 units | 41H |
| **Labels** | | | | | | | | |
| | -- | -- | 15.5 | **LZS:RT17040** | | 100 | 10 units | 41H |
| **RC elements** | | | | | | | | |
| | 6 ... 60 AC | -- | 15.5 | **LZS:PTMU0524** | | 1 | 1 unit | 41H |
| | 110 ... 230 AC | | | **LZS:PTMU0730** | | 1 | 1 unit | 41H |
| **Freewheeling diodes with connection to A1** | | | | | | | | |
| | 6 ... 230 DC | -- | 15.5 | **LZS:PTMT00A0** | | 1 | 1 unit | 41H |
| **Connecting combs for RT screw base** | | | | | | | | |
| 8-pole, 10 A current-carrying capacity, natural-colored | -- | -- | -- | **LZS:RT170R8** | | 1 | 10 units | 41H |
| **Connecting brackets for push-in base** | | | | | | | | |
| 2-pole, 10 A current-carrying capacity, natural-colored | -- | -- | -- | **LZS:RT170P1** | | 100 | 10 units | 41H |

LZX:RT314024

LZS:RT78725

LZS:RT78726

LZS:RT7872P

LZS:PTML0024

LZS:RT17016

LZS:RT17040

LZS:PTMU0730

Note:

SITOP DC power supplies such as 6EP1331-5BA00 or 6EP1331-5BA10 can be used for unavailable coil voltages, see page 15/1 or Catalog KT 10.1.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Price groups**

PG 14O, 41B, 41C, 41E, 41H, 41L, 42G, 42J, 42S

6/2 **Introduction**

**SIRIUS 3RW soft starters**

6/5 General data

High Performance soft starters

3RW55 soft starters

6/15 - General data
6/29 - Standard (inline) circuit
6/33 - Inside-delta circuit
6/37 - Accessories

3RW55 Failsafe soft starters

6/39 - General data
6/51 - Standard (inline) circuit
6/52 - Inside-delta circuit
6/53 - Accessories

General Performance soft starters

3RW52 soft starters

6/55 - General data
6/67 - Standard (inline) circuit
6/69 - Inside-delta circuit
6/71 - Accessories

Basic Performance soft starters

3RW50 soft starters

6/73 - General data
6/81 - Standard (inline) circuit
6/82 - Accessories

3RW40 soft starters

6/84 - General data
6/92 - Standard (inline) circuit
6/94 - Accessories

3RW30 soft starters

6/96 - General data
6/103 - Standard (inline) circuit
6/104 - Accessories

Spare parts

6/106 For 3RW55
6/110 For 3RW55 Failsafe
6/112 For 3RW52
6/115 For 3RW50

Software

14/4 Simulation Tool for Soft Starters (STS)
14/5 SIRIUS Soft Starter ES (TIA Portal)
14/8 SIRIUS 3RW soft starter block library for SIMATIC PCS 7
14/25 SIRIUS Sim

**Solid-state switching devices for resistive/inductive loads**

SIRIUS 3RF2 solid-state relays and contactors

6/117 General data

Solid-state relays

6/121 - General data
6/122 - SIRIUS 3RF21 solid-state relays, 1-phase, 22.5 mm
6/128 - SIRIUS 3RF20 solid-state relays, 1-phase, 45 mm
6/132 - SIRIUS 3RF22 solid-state relays, 3-phase, 45 mm

Solid-state contactors

6/135 - General data
6/136 - SIRIUS 3RF23 solid-state contactors, 1-phase
6/146 - SIRIUS 3RF24 solid-state contactors, 3-phase

SIRIUS 3RF29 function modules

6/150 General data
6/152 SIRIUS converters for 3RF2
6/153 SIRIUS load monitoring for 3RF2
6/154 SIRIUS heating current monitoring for 3RF2
6/155 SIRIUS power controllers for 3RF2
6/157 SIRIUS power regulators for 3RF2

**SIRIUS 3RF34 solid-state switching devices for switching motors**

Solid-state contactors

6/159 General data
6/162 SIRIUS 3RF34 solid-state contactors, 3-phase
6/165 SIRIUS 3RF34 solid-state reversing contactors, 3-phase

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## Introduction

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 |
| Industry Mall, see www.siemens.com/product?3RW | Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Sirius3rwFolder | Conversion tool, see www.siemens.com/conversion-tool |

3RW55

3RW55 Failsafe

3RW52

3RW50

3RW40

3RW30

| 3RW soft starters | | Article No. | Page |
|---|---|---|---|
| ***High Performance soft starters*** | | | |
| **3RW55 soft starters** | • TIA integration optional<br>• Plug-in communications modules for PROFINET, PROFIBUS, EtherNet/IP and Modbus<br>• Removable HMI module with color display, local interface and slot for a micro SD memory card<br>• Extended protection functions<br>• Up to 1 200 kW at 400 V (can be used in supply systems up to 690 V)<br>• Automatic parameterization for simple commissioning and reliability even under changing load conditions<br>• Hybrid switching technology for minimum power loss and 3-phase motor control for optimum/symmetrical motor control<br>• Pump stop for reduced mechanical loading and optimum pump stop control<br>• ATEX/IECEx certification<br>• System redundancy S2 (with PROFINET High-Feature communications module) | 3RW55..-.HA.. | 6/15 |
| **3RW55 Failsafe soft starters** | • TIA integration optional<br>• Plug-in communications modules for PROFINET, PROFIBUS, EtherNet/IP and Modbus<br>• Removable HMI module with color display, local interface and slot for a micro SD memory card<br>• Extended protection functions<br>• Up to 560 kW at 400 V (can be used in supply systems up to 480 V)<br>• SIL 1/PL c/STO without additional components<br>• SIL 3/PL e/STO with additional contactor and safety relay<br>• Hybrid switching technology for minimum power loss and 3-phase motor control for optimum/symmetrical motor control<br>• Pump stop for reduced mechanical loading and optimum pump stop control<br>• ATEX/IECEx certification<br>• System redundancy S2 (with PROFINET High-Feature communications module) | 3RW55..-.HF.. | 6/39 |
| ***General Performance soft starters*** | | | |
| **3RW52 soft starters** | • TIA integration optional<br>• Plug-in communications modules for PROFINET, PROFIBUS, EtherNet/IP and Modbus<br>• HMI modules optional<br>• Soft starting and stopping<br>• Current limiting<br>• Motor overload protection (optionally with thermistor motor protection)<br>• Analog output (optional)<br>• Up to 560 kW at 400 V (can be used in supply systems up to 600 V)<br>• Hybrid switching technology for minimum power loss and 3-phase motor control for optimum/symmetrical motor control<br>• Soft Torque for reduced mechanical loading and optimum pump stop<br>• Parameterization using potentiometers | 3RW52 | 6/55 |

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3RW55

3RW55 Failsafe

3RW52

3RW50

3RW40

3RW30

| | | Article No. | Page |
|---|---|---|---|
| **3RW soft starters** | | | |
| ***Basic Performance soft starters*** | | | |
| **3RW50 soft starters** | • TIA integration optional<br>• Communications modules for PROFINET, PROFIBUS, EtherNet/IP and Modbus<br>• HMI modules optional<br>• Soft starting and stopping<br>• Current limiting<br>• Motor overload protection (optionally with thermistor motor protection)<br>• Analog output (optional)<br>• Up to 315 kW at 400 V (can be used in supply systems up to 600 V)<br>• Hybrid switching technology for minimum power loss and 2-phase motor control<br>• Soft Torque for reduced mechanical loading and optimum pump stop<br>• Parameterization using potentiometers<br>• ATEX/IECEx certification | 3RW50 | 6/73 |
| **3RW40 soft starters** | • Soft starting and stopping<br>• Current limiting<br>• Motor overload protection (optionally with thermistor motor protection)<br>• Up to 55 kW at 400 V (can be used in supply systems up to 600 V)<br>• Hybrid switching technology for minimum power loss and 2-phase motor control<br>• ATEX certification | 3RW40 | 6/84 |
| **3RW30 soft starters** | • Soft starting with voltage ramp<br>• Up to 55 kW at 400 V (can be used in supply systems up to 480 V) | 3RW30 | 6/96 |

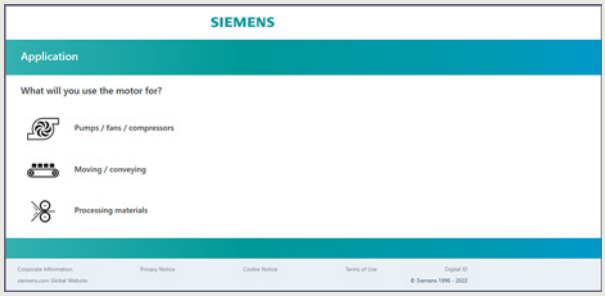
### *Use of SIRIUS 3RW soft starters in conjunction with IE3 and IE4 motors*

Note:

For the use of SIRIUS 3RW soft starters in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

More information, see page 1/8.

### *Decision-making support for motor starting – Starting and running three-phase asynchronous motors efficiently*




Decision-making support tool for motor starting

By asking some short questions about the application, this tool provides the optimum individual drive solution.

Based on this approach, you are taken to the correct product configurator where you can select suitable products, see www.siemens.com/motorstart-guide.

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## Introduction

| More information | |
|---|---|
| Industry Mall, see www.siemens.com/product?3RF | Online configurator, see www.siemens.com/sirius/configurators<br>Conversion tool, see www.siemens.com/conversion-tool |

3RF21

3RF20

3RF22

3RF23

3RF24

3RF29

3RF34 (motor)

| | | Article No. | Page |
|---|---|---|---|
| **SIRIUS solid-state switching devices for switching resistive/inductive loads** | | | |
| ***Solid-state relays*** | | | |
| **Solid-state relays** | • Widths of 22.5 mm and 45 mm<br>• Compact and space-saving design<br>• "Zero-point switching" version<br>• Mounting on existing cooling surfaces | **3RF21**<br>**3RF20**<br>**3RF22** | 6/122<br>6/128<br>6/132 |
| ***Solid-state contactors*** | | | |
| **Solid-state contactors** | • Complete units comprising a solid-state relay and an optimized heat sink, "ready to use"<br>• Compact and space-saving design<br>• Versions for resistive loads "zero-point switching" and inductive loads "instantaneous switching"<br>• Special "low noise" and "short-circuit-proof" versions | **3RF23**<br>**3RF24** | 6/136<br>6/146 |
| ***Function modules*** | | | |
| | For extending the functionality of the 3RF21 solid-state relays and the 3RF23 solid-state contactors for many different applications | | |
| **Converters** | • For converting an analog input signal into an on/off ratio; can also be used on 3RF22 and 3RF24 3-phase switching devices | **3RF2900-0EA18** | 6/152 |
| **Load monitoring** | • For load monitoring of one or more loads (partial loads) | **3RF29..-0FA08, 3RF29.0-0GA1.** | 6/153 |
| **Heating current monitoring** | • For load monitoring of one or more loads (partial loads); remote teach | **3RF29..-0JA..** | 6/154 |
| **Power controllers** | • For setting the current by means of a solid-state switching device depending on a setpoint value set by the power controller. There is a choice of full-wave control and generalized phase control. | **3RF29..-0KA..** | 6/155 |
| **Power regulators** | • For regulating the current by means of a solid-state switching device, depending on a setpoint value set by the power regulator. Closed-loop control: full-wave control or generalized phase control | **3RF29.0-0HA..** | 6/157 |
| **SIRIUS solid-state switching devices for switching motors** | | | |
| ***Solid-state contactors*** | | | |
| **Solid-state contactors, solid-state reversing contactors** | • Complete units in the insulated enclosure with integrated heat sink, "ready to use"<br>• Compact and space-saving design<br>• Version for motors, "instantaneous switching" | **3RF34** | 6/162, 6/165 |

### *Use of SIRIUS solid-state switching devices for switching motors in conjunction with IE3 and IE4 motors*

Note:

For the use of SIRIUS 3RF solid-state switching devices for switching motors in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

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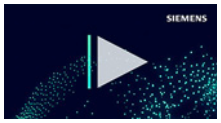
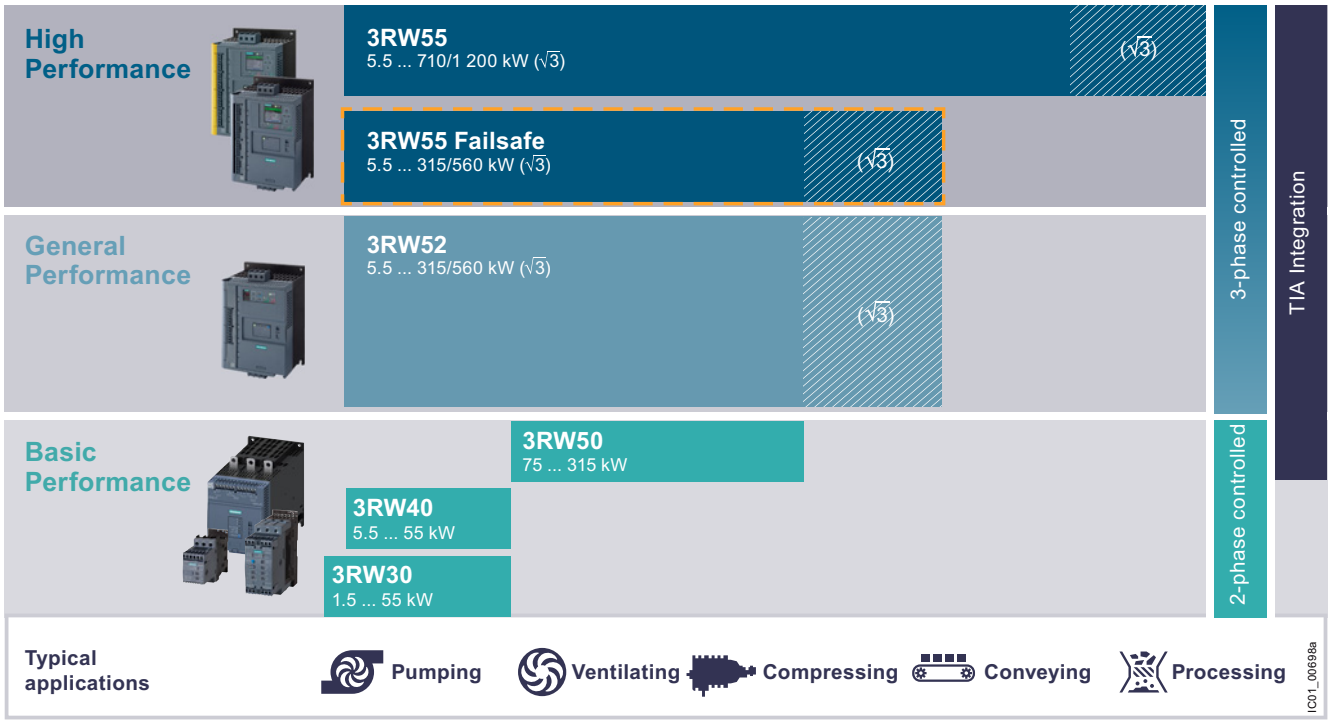
## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |
| Industry Mall, see www.siemens.com/product?3RW | SIRIUS Soft Starter ES (TIA Portal), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=Sirius3rwFolder | Decision-making support for motor starting – Starting and running three-phase asynchronous motors efficiently see www.siemens.com/motorstart-guide |
| Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | Conversion tool, see www.siemens.com/conversion-tool |




Video: Soft starter teaser

***SIRIUS 3RW soft starters – as versatile as your application***




SIRIUS 3RW soft starters

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## General data

| Applications | High Performance | General Performance | Basic Performance | | |
|---|---|---|---|---|---|
| SIRIUS soft starters | 3RW55/3RW55-F | 3RW52 | 3RW50 | 3RW40 | 3RW30 |
| **Selection aid for soft starters** | | | | | |
| ***Normal starting (CLASS 10)*** | | | | | |
| Pumps | ● | ● | ● | ● | ● |
| Pumps with special pump stop (to prevent water hammer) | ● | ❍ | ❍ | | |
| Heat pumps | ● | ● | ● | ● | ● |
| Hydraulic pumps | ● | ● | ● | ● | ❍ |
| Presses | ● | ● | ● | ● | ❍ |
| Conveyor belts | ● | ● | ● | ● | ❍ |
| Roller conveyors | ● | ● | ● | ● | ❍ |
| Screw conveyors | ● | ● | ● | ● | ❍ |
| Escalators | ● | ● | ● | ● | |
| Piston compressors | ● | ● | ● | ● | |
| Screw compressors | ● | ● | ● | ● | |
| Small fans[1] | ● | ● | ● | ● | |
| Centrifugal blowers | ● | ● | ● | ● | |
| Bow thrusters | ● | ● | ● | ● | |
| ***Heavy starting (CLASS 20)*** | | | | | |
| Stirrers | ● | ❍ | ❍ | ❍ | |
| Extruders | ● | ❍ | ❍ | ❍ | |
| Lathes | ● | ❍ | ❍ | ❍ | |
| Milling machines | ● | ❍ | ❍ | ❍ | |
| ***Heavy starting (CLASS 30)*** | | | | | |
| Large fans[2] | ● | | | | |
| Circular saws/bandsaws | ● | | | | |
| Centrifuges | ● | | | | |
| Mills | ● | | | | |
| Crushers | ● | | | | |

● Recommended soft starter
❍ Possible soft starter

[1] The mass inertia of the fan is <10 times the mass inertia of the motor.
[2] The mass inertia of the fan is ≥10 times the mass inertia of the motor.

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| Applications | | High Performance | | General Performance | Basic Performance | | |
|---|---|---|---|---|---|---|---|
| **SIRIUS soft starters** | | **3RW55** | **3RW55-F** | **3RW52** | **3RW50** | **3RW40** | **3RW30** |
| **General technical specifications** | | | | | | | |
| **Operational current at 40 °C** | A | 13 ... 2 217 | 13 ... 987 | 13 ... 987 | 143 ... 570 | 12.5 ... 106 | 3 ... 106 |
| **Operational voltage** | V | 200 ... 690[1] | 200 ... 480 | 200 ... 600 | 200 ... 600 | 200 ... 600 | 200 ... 480 |
| **Operating power for three-phase motors** | | | | | | | |
| • At 400 V, at 40 °C | | | | | | | |
| - Standard (inline) circuit | kW | 5.5 ... 710 | 5.5 ... 315 | 5.5 ... 315 | 75 ... 315 | 5.5 ... 55 | 1.5 ... 55 |
| - Inside-delta circuit | kW | 11 ... 1 200 | 11 ... 560 | 11 ... 560 | -- | -- | -- |
| • At 460/480 V at 50 °C | | | | | | | |
| - Standard (inline) circuit | hp | 7.5 ... 1 000 | 7.5 ... 400 | 7.5 ... 400 | 100 ... 400 | 7.5 ... 75 | 1.5 ... 75 |
| - Inside-delta circuit | hp | 10 ... 1 700 | 10 ... 750 | 10 ... 750 | -- | -- | -- |
| **Ambient temperature**[2] | °C | -25 ... +60 | -25 ... +60 | -25 ... +60 | -25 ... +60 | -25 ... +60 | -25 ... +60 |
| **Soft starting/stopping** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓[3] |
| **Voltage ramp** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Starting voltage** | % | 20 ... 100 | 20 ... 100 | 30 ... 100 | 30 ... 100 | 40 ... 100 | 40 ... 100 |
| **Ramp-up and ramp-down time** | s | 0 ... 360 | 0 ... 360 | 0 ... 20 | 0 ... 20 | 0 ... 20 | 0 ... 20[3] |
| **Pump stop (torque control)**[4] | | ✓ | ✓ | -- | -- | -- | -- |
| • Starting torque | % | 10 ... 100 | 10 ... 100 | -- | -- | -- | -- |
| • Torque limit | % | 20 ... 200 | 20 ... 200 | -- | -- | -- | -- |
| **Soft Torque (torque limit)** | | -- | -- | ✓ | ✓ | -- | -- |
| **Integral bypass contact system** | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Intrinsic device protection** | | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| **Motor overload protection** | | ✓[5] | ✓[5] | ✓ | ✓[5] | ✓[5] | -- |
| **Thermistor motor protection evaluation** | | ✓ | ✓ | ✓[6] | ✓[6] | ✓[6] | -- |
| **Analog output** | | ✓ | ✓ | ✓[6] | ✓[6] | -- | -- |
| **Remote RESET** | | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| **Adjustable current limiting** | | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| **Inside-delta circuit**[1] | | ✓ | ✓ | ✓ | -- | -- | -- |
| **Breakaway pulse** | | ✓ | ✓ | -- | -- | -- | -- |
| **Automatic parameterization** | | ✓ | ✓ | -- | -- | -- | -- |
| **Pump cleaning** | | ✓ | ✓ | -- | -- | -- | -- |
| **Condition monitoring** | | ✓ | ✓ | -- | -- | -- | -- |
| **User account administration**[7] | | ✓ | ✓ | -- | -- | -- | -- |
| **Creep speed in both directions of rotation** | | ✓ | -- | -- | -- | -- | -- |
| **Reversing operation** | | ✓ | ✓ | -- | -- | -- | -- |
| **Reversing DC braking**[4][8] | | ✓ | -- | -- | -- | -- | -- |
| **DC braking**[4][8] | | ✓ | -- | -- | -- | -- | -- |
| **Dynamic DC braking**[4][8] | | ✓ | -- | -- | -- | -- | -- |
| **Motor heating** | | ✓ | -- | -- | -- | -- | -- |
| **Communication function**[9] | | ✓ | ✓ | ✓ | ✓ | -- | -- |
| **HMI module installable in the control cabinet door** | | ✓ | ✓ | ✓[9] | ✓[9] | -- | -- |
| **Operating measured value display** | | ✓ | ✓ | ✓[9] | ✓[9] | -- | -- |
| **Logbooks** | | ✓ | ✓ | ✓[9] | ✓[9] | -- | -- |
| **Statistical data and slave pointer function** | | ✓ | ✓ | ✓[9] | ✓[9] | -- | -- |
| **Trace function**[7] | | ✓ | ✓ | -- | -- | -- | -- |
| **Programmable control inputs and outputs** | | ✓ | ✓ | -- | -- | -- | -- |
| **Number of parameter sets** | | 3 | 3 | 1 | 1 | 1 | 1 |
| **Parameterizable via software**[7] | | ✓ | ✓ | -- | -- | -- | -- |
| **Number of controlled phases** | | 3 | 3 | 3 | 2 | 2 | 2 |
| **Heavy starting CLASS 30**[4] | | ✓ | ✓ | -- | -- | -- | -- |

✓ Function available
-- Function not available

1) Inside-delta circuit only up to operational voltage 600 V.
2) Note derating above 40 °C.
3) Only soft starting available for 3RW30.
4) Calculate soft starter and motor with overdimension where required.
5) When using the motor overload protection according to ATEX/IECEx, an upstream contactor may be required, see page 6/13.
6) Special device versions only.
7) With software Soft Starter ES (TIA Portal).
8) Not possible in inside-delta circuit.
9) Only in conjunction with special accessories.

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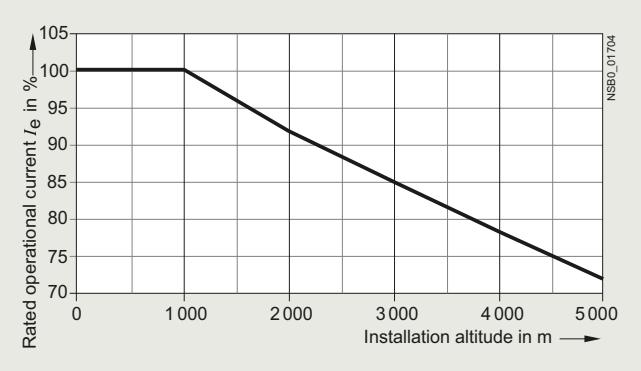
## General data

### *Constraints*

The 3RW soft starters should always be designed on the basis of the required rated operational current of the motor.
The motor ratings listed in the selection and ordering data are rough guide values and designed for basic starting conditions (CLASS 10). For other starting conditions, we recommend the Simulation Tool for Soft Starters (STS).

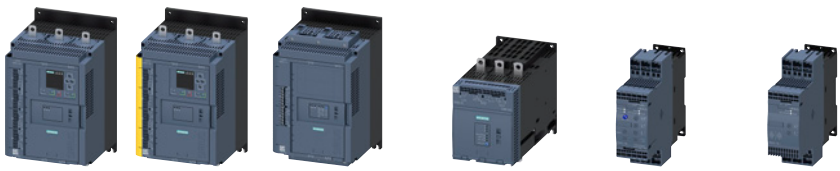
Motor rating data in kW and hp are based on IEC 60947-4-1.

At an installation altitude above 2 000 m, the max. permissible operational voltage is reduced to 480 V.




Installation altitude for SIRIUS 3RW soft starters

The selection and ordering data were determined for the following constraints (stand-alone installation without auxiliary fan)



| Applications | | High Performance | General Performance | Basic Performance | | |
|---|---|---|---|---|---|---|
| **SIRIUS soft starters** | | **3RW55/3RW55-F** | **3RW52** | **3RW50** | **3RW40** | **3RW30** |
| **Constraints** | | | | | | |
| **Maximum starting time** | s | 20 | 10 | | | 3 |
| **Maximum starting current in % of motor current** | $I_e$ | 300 | | | | |
| **Maximum number of starts per hour** | 1/h | 5 | | | | 20 |

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***Simulation Tool for Soft Starters (STS)*** (see page 14/4)

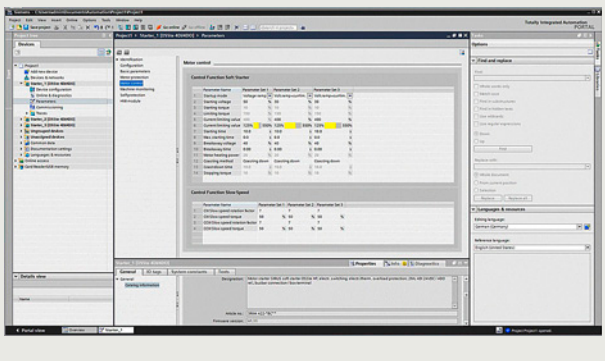
Easy input of motor and load data

The Simulation Tool for Soft Starters (STS) provides a convenient means of designing soft starters using a simple, quick and easy-to-use interface. Entering the motor and load data will simulate the application and prompt suggestions for suitable soft starters.

- Simple, quick and user-friendly interface
- Detailed and up-to-date Siemens motor database, including IE3 and IE4 motors.
- Simulation of heavy starting up to CLASS 30
- Update-capable (e.g. motors, load types, functions)
- Fast simulations with minimum input data
- Immediate, graphical curve charts of start operations with limit values
- Table view of suitable soft starters for the application

The Simulation Tool for Soft Starters (STS) is available as a free download for Windows and as an app (for Android and iOS).

***SIRIUS Soft Starter ES (TIA Portal)*** (see page 14/5 onwards)



Easy and clearly arranged parameter setting of the SIRIUS 3RW44 and 3RW55 soft starters with SIRIUS Soft Starter ES (TIA Portal)

The SIRIUS Soft Starter ES (TIA Portal) software permits quick and easy parameterization, monitoring and diagnostics of SIRIUS 3RW44 and 3RW5 soft starters for service purposes.

- Transparent setting of the device functions and their parameters – online and offline
- Effective diagnostics functions on the soft starter and display of the most important measured values
- Trace function (oscilloscope function) for recording measured values and events (only in the Professional software version)
- Time savings through shorter startup times
- Fast, low-cost licensing using a simple licensing procedure (also available online)

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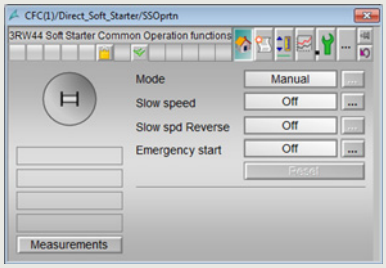
## General data

***SIRIUS 3RW soft starter block library for SIMATIC PCS 7***
(see page 14/7 onwards)

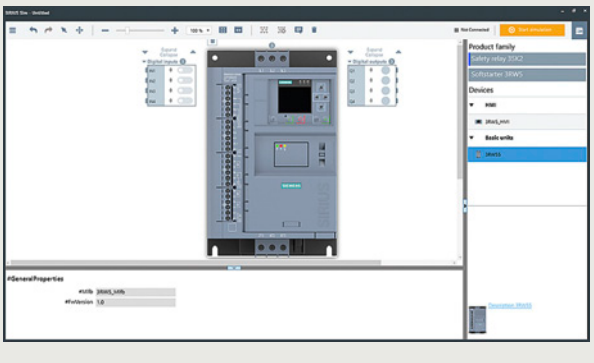



Faceplate of the motor block

The PCS 7 block library for SIRIUS 3RW soft starter can be used for simple and convenient integration of SIRIUS 3RW44, 3RW52 and 3RW55 soft starters into the SIMATIC PCS 7 process control system.

The PCS 7 block library for SIRIUS 3RW soft starter contains the diagnostics and driver blocks that correspond to the SIMATIC PCS 7 diagnostics and driver concept as well as the elements (symbols and faceplates) required for operator control and process monitoring.

***SIRIUS Sim*** (see page 14/25 onwards)




SIRIUS Sim 3RW55

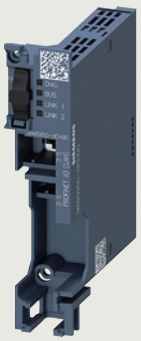
The SIRIUS simulation tool can be used to quickly and easily test functions and configurations in an office environment. These configurations can then be loaded directly into real devices.

SIRIUS Sim V2.0 integrates the SIRIUS 3RW55 and SIRIUS 3RW55 Failsafe soft starters with the following features:

- Complete parameterization of the SIRIUS 3RW55 High Performance soft starters
- Complete navigation with the same menu structure as on the HMI
- Optional storage of the parameterization on a micro SD memory card for transfer to the real soft starter
- Simulation of starting and stopping, including operating phases as well as different fault conditions

SIRIUS Sim is available as a free download.

***SIRIUS 3RW55 and 3RW55 Failsafe system redundancy S2 with PROFINET High-Feature communications module***
(see pages 6/37 and 6/53)



PROFINET High-Feature communications module 3RW5950-0CH00

The PROFINET High-Feature communications module for the SIRIUS 3RW55 and SIRIUS 3RW55 Failsafe soft starters supports the S2 system redundancy mechanisms of PROFINET IO from firmware version 3.0 and can therefore be operated directly on fault-tolerant systems, such as SIMATIC S7-400H and S7-1500H. As such, 3RW55 and 3RW55 Failsafe soft starters can provide decisive added value also for the field level of plants in which plant availability and control system redundancy are priorities.

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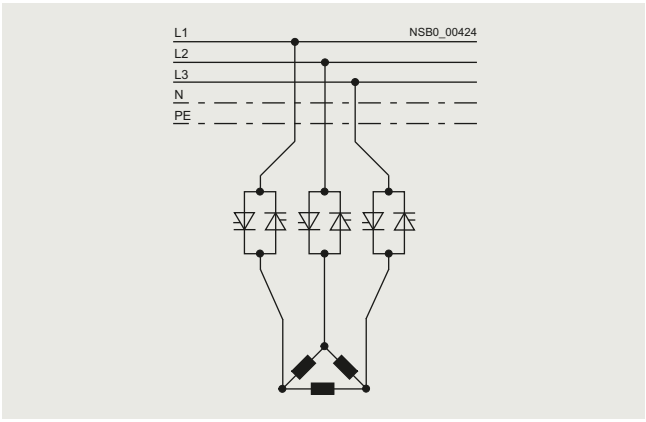
### *Circuit concept*

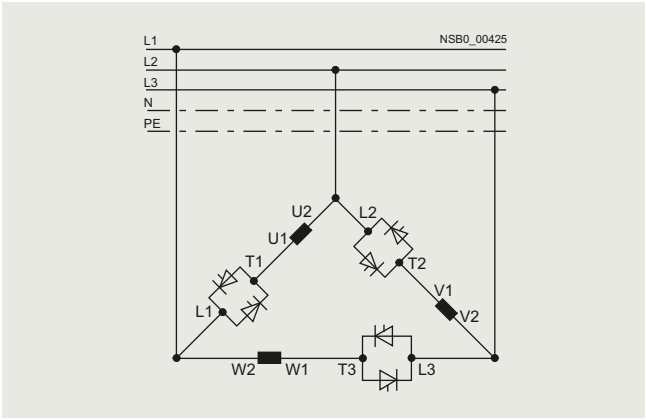
3-phase controlled SIRIUS 3RW soft starters can be operated in two different types of circuit:

- Standard (inline) circuit
  The controls for isolating and protecting the motor are simply connected in series with the soft starter. The motor is connected to the soft starter with three cables.
- Inside-delta circuit
  The wiring is similar to that of star-delta (wye-delta) starters. The phases of the soft starter are connected in series with the individual motor windings. The soft starter then only has to carry the phase current, amounting to about 58% of the rated motor current (conductor current).

Comparison of the types of circuit




Standard (inline) circuit: Rated current $I_e$ corresponds to the rated motor current $I_n$, three cables to the motor




Inside-delta circuit: Rated current $I_e$ corresponds to approx. 58% of the rated motor current $I_n$, six cables to the motor (as for star-delta (wye-delta) starters)

Which circuit?

Using the standard (inline) circuit involves the lowest wiring outlay. If the soft starter to motor connections are long, this circuit is preferable.

The wiring complexity is twice as high when using the inside-delta circuit, but a smaller device can be used with the same rating. Thanks to the choice of operating mode between the standard (inline) circuit and inside-delta circuit, it is always possible to select the most favorable solution.

The braking function is possible only in the standard (inline) circuit. The inside-delta circuit cannot be used in 690 V line supplies.

### *Configuration*

The solid-state 3RW soft starters are designed for normal starting. In case of heavy starting or increased starting frequency, a larger unit must be selected. The 3RW50 and 3RW52 soft starters may be used in isolated supply networks (IT systems) up to 600 V AC and the 3RW55 soft starters even up to 690 V.

For long starting times it is recommended to have a PTC sensor or temperature switch in the motor. This also applies for the ramp-down modes torque control, pump stop and DC braking, because during the ramp-down time in these modes, an additional current loading applies in contrast to free ramp-down.

No capacitive elements are permitted in the motor feeder between the SIRIUS 3RW soft starter and the motor (e.g. no reactive-power compensation equipment). In addition, neither static systems for reactive power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and stopping of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses and switching devices) should be dimensioned for direct-on-line starting, following the local short-circuit conditions. Fuses and switching devices must be ordered separately. The harmonic component load of the starting current must be taken into consideration for the selection of motor starter protectors/circuit breakers (selection of release). Please observe the maximum switching frequencies specified in the technical specifications.

Notes:

When three-phase motors are switched on, voltage drops occur as a rule on starters of all types (direct-on-line starters, star-delta (wye-delta) starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

For dimensioning soft starters, we recommend our Simulation Tool for Soft Starters (STS), see page 6/9 or our Technical Support, www.siemens.com/support-request.

Recommended parameters for the initial commissioning of our SIRIUS 3RW soft starters are listed in every report of our Simulation Tool for Soft Starters (STS). In addition, our High Performance soft starters provide support by means of their commissioning wizards.

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## General data

### *Motor feeders with soft starters*

The type of coordination according to which the motor feeder with soft starter is mounted depends on the application-specific requirements. Normally, fuseless mounting (combination of motor starter protector/circuit breaker and soft starter) is sufficient.

If type of coordination "2" is to be fulfilled, then semiconductor fuses must be fitted in the motor feeder.

ToC 1 Type of coordination "1" according to IEC 60947-4-1: After a short-circuit incident, the unit is defective and therefore unsuitable for further use (protection of persons and system guaranteed).

ToC 2 Type of coordination "2" according to IEC 60947-4-1: After a short-circuit incident the unit is suitable for further use (protection of persons and system guaranteed).

The type of coordination refers to soft starters in combination with the stipulated protective device (motor starter protector/circuit breaker, fuse), not to any additional components in the feeder.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

### *Feeder tests and results*

To keep the scope of feeder tests with SIRIUS 3RW soft starters within economically reasonable limits, tests were conducted with feeder components (motor starter protectors/circuit breakers, fuses) that cover the greatest number of use cases (different soft starter versions depending on, for example, line voltage, type of circuit, or necessary overdimensioning). For the combined tests that were conducted, the values for the short-circuit breaking capacity $I_q$ in kA were determined and documented.

If the short-circuit breaking capacity is the same, of course, smaller motor starter protectors/circuit breakers or fuses can also be used for the selected soft starter provided the dimensioning of the short-circuit components is suitable for the connected three-phase motor and the line protection for the cables used. For type of coordination "2" (with semiconductor protection), it is also necessary to compare the characteristics because the protection function would no longer be completely ensured if too small a fuse were selected. If the soft starter does not have a motor protection function, the motor protection must also be dimensioned appropriately.

Setting the motor current

If circuit breakers with an overload release are used (e.g. SIRIUS 3RV20 motor starter protector), we recommend activating the motor protection function of the SIRIUS 3RW soft starter to protect the motor and setting the soft starter to the rated operational current $I_e$ of the motor. We recommend setting the motor starter protector/circuit breaker in such a way that it provides line protection but does not usually trip before the soft starter when a motor overload occurs.

### *Line protection and motor protection*

Line protection and motor protection are not ensured in all operating cases, depending on:

- How the motor feeder is constructed (e.g. with fuses or motor starter protectors/circuit breakers)
- Whether the SIRIUS 3RW soft starters are operated within the specification relevant for the tests (IEC 60947-4-2)
- Or whether the documented constraints (see page 6/8) have been observed

There are operating states of the thyristors (caused, for example, by high starting frequencies or heavy starting) that do not permit an overload to be disconnected by the SIRIUS 3RW soft starter. These cases are very rare but can not be ruled out in all cases.

In accordance with IEC 60947-4-2, the SIRIUS 3RW soft starters are dimensioned and checked for operation with up to 8 times the rated operational current $I_e$. For currents larger than this, reliable disconnection of an overcurrent by the SIRIUS 3RW soft starter is not ensured. Such large overcurrents have to be disconnected by a switching device at a higher level (e.g. by a motor starter protector/circuit breaker or a fuse in conjunction with an optional line contactor).

Motor protection by the SIRIUS 3RW soft starter is ensured for currents up to 8 times the rated operational current $I_e$ in any case. Line protection is covered by the line-side motor starter protector/circuit breaker or fuse.
These motor feeder components must be dimensioned accordingly and the cable cross-sections must be chosen to match.

### *Line protection*

Line protection in motor feeders with soft starters is always covered by a fuse or a circuit breaker both in case of an overload and in case of a short circuit. The circuit breaker must have an overload release. That is the case for motor starter protectors (e.g. SIRIUS 3RV20).

Circuit breakers without an overload release (e.g. SIRIUS 3RV23 motor starter protectors) must not be used because they do not provide overload protection. The feeder tests for these were therefore not performed. If the motor feeder with SIRIUS 3RW soft starters is configured without a fuse, motor starter protectors must be used that ensure tripping on an overload in all cases.

### *Motor protection*

If fuses are used to provide protection against overload and short circuit of the cables, the motor is protected by the SIRIUS 3RW soft starter. If the constraints (simple starting conditions CLASS 10, listed maximum values for starting current, starting time and number of starts per hour) of page 6/8 are observed, the motor feeders can be configured according to IEC as described in the section about soft starters (an optional line contactor is not required). If these preconditions are met, the SIRIUS 3RW soft starters are able to trip on overloads to protect the motor in any case.

In other starting conditions and on heavy starting, the following must be considered:

Trip classes

Tested fuseless switchgear assemblies comprising SIRIUS 3RW soft starters and motor starter protectors only comply with CLASS 10.
To configure tested motor feeders, for example, for CLASS 20 or CLASS 30, fuses must be used together with SIRIUS 3RW soft starters.

Line contactor

In applications with high starting frequencies or heavy starting as of CLASS 20, we recommend combining fuses with the use of a line contactor on the line side so that a motor overload is disconnected by the fault signaling contact of the soft starter in any case (that is, even in rare cases in which disconnection by the SIRIUS 3RW soft starter is no longer possible due to the operating state of the thyristors).

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***ATEX/IECEx-certified motor overload protection***

Ambient temperature during operation

The SIRIUS 3RW soft starters are approved for operation in a temperature range of -25 to +60 °C.

The derating of the rated operational current must be taken into account for ambient temperatures above 40 °C.

For more information, see Equipment Manual and the technical product data sheet of the selected soft starter.

Trip class (electronic overload protection)

The motor and cables must be dimensioned for the selected trip class.

The rated data of the soft starters refers to normal starting (CLASS 10). For heavy starting (> CLASS 10), the soft starter may need to be overdimensioned as only a rated motor current that is lower than the soft starter rated current can be set.

Short-circuit protection

The SIRIUS 3RW soft starter does not have short-circuit protection. Short-circuit protection must be ensured.

Line protection

Avoid impermissibly high cable surface temperatures by correctly dimensioning the cross-sections.

The cable cross-section must be adequately dimensioned.

Line contactor or additional undervoltage release on the motor starter protector/circuit breaker

In many ATEX/IECEx applications no additional measures (e.g. the use of a line contactor) are necessary with regard to the motor feeder configuration.

The operation of the selected soft starter may, depending on the amplitude of the line voltage and the type of motor connection (standard (inline) circuit or inside-delta circuit), result in the loss of the certified motor overload protection according to ATEX/IECEx if one of the two remedial measures listed below is not implemented.

Remedial measures

- An additional line contactor in the main circuit
- An additional undervoltage release for a motor feeder configuration with a motor starter protector/circuit breaker

The line contactor or the undervoltage release are connected to error outputs 95, 96 and 98 of the selected soft starter.

Note:

For ATEX/IECEx applications, the accompanying information on parameterization and commissioning must be observed in the ATEX/IECEx chapters of the Equipment Manual for the selected soft starter.



***Article number scheme***

| Product versions | | Article number | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Device type | **High Performance soft starters** | **3RW55** | □ | □ | – | □ | □ | □ | □ | □ | |
| | **General Performance soft starters** | **3RW52** | □ | □ | – | □ | □ | □ | □ | □ | |
| | **Basic Performance soft starters** | **3RW50** | □ | □ | – | □ | □ | □ | □ | □ | |
| | | **3RW40** | □ | □ | – | □ | □ | □ | □ | □ | |
| | | **3RW30** | □ | □ | – | □ | □ | □ | □ | □ | |
| Size/rated operational current $I_e$ | e.g. 15 = 25 A in size S1 | | □ | □ | | | | | | | |
| Connection type | e.g. 1 = screw terminal | | | | | □ | | | | | |
| Soft starter functionality | e.g. AC = with bypass and analog output, 3-phase controlled | | | | | | □ | □ | | | |
| Rated control supply voltage $U_s$ | e.g. 0 = 24 V AC/DC | | | | | | | | □ | | |
| Rated operational voltage $U_e$ | e.g. 4 = 200 ... 480 V AC | | | | | | | | | □ | |
| Example | | **3RW52** | **1** | **5** | **–** | **1** | **A** | **C** | **0** | **4** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## General data

### Benefits

***Can be flexibly deployed in many applications***

**Strong portfolio:
wide range of matching products**

- The right hardware for all requirements,
  soft starters for tasks ranging from simple to demanding starting in Basic, General and High Performance versions
- Extensive portfolio for individual expansion:
  Optional HMIs for installation in the device or mounting on the control cabinet door
- Communication via PROFINET, PROFIBUS, EtherNet/IP and Modbus
- Design enclosure with removable terminals, space-saving thanks to compact design and rugged thanks to coated printed circuit boards
- Can be used worldwide thanks to numerous certificates and approvals:
  IEC, UL, CSA, CCC, ATEX/IECEx, shipbuilding

**Intelligent operation:
concentrated, application-specific functionality**

- Can be used in a wide variety of applications:
  Pumping, ventilating, compressing, conveying and processing
- Integrated, self-learning automatic parameterization depending on motor starting conditions
- Application-specific functionality such as pump cleaning and pump stop
- Condition monitoring:
  Current and power monitoring with warning and alarm limits, starting time monitoring

**Efficient switching:
hybrid switching technology on board**

- Energy-efficient switching and mechanical protection of the drive train thanks to soft starters with hybrid switching technology
- Low-wear switching extends the service life of the devices
- Soft starting prevents current peaks, thereby increasing the network stability
- Protection against disturbances in the application:
  Mechanical protection for the drive train

**Ready for a digital future:
data available whenever and wherever needed**

- Support from tools and data during engineering
- Simulation Tool for Soft Starters for support during product selection
- Very simple, standardized commissioning and configuration via Soft Starter ES in TIA Portal
- Integration in the automation system via communication links
- Data availability and analysis:
  large volumes of data at any time and anywhere, even into MindSphere

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## Overview

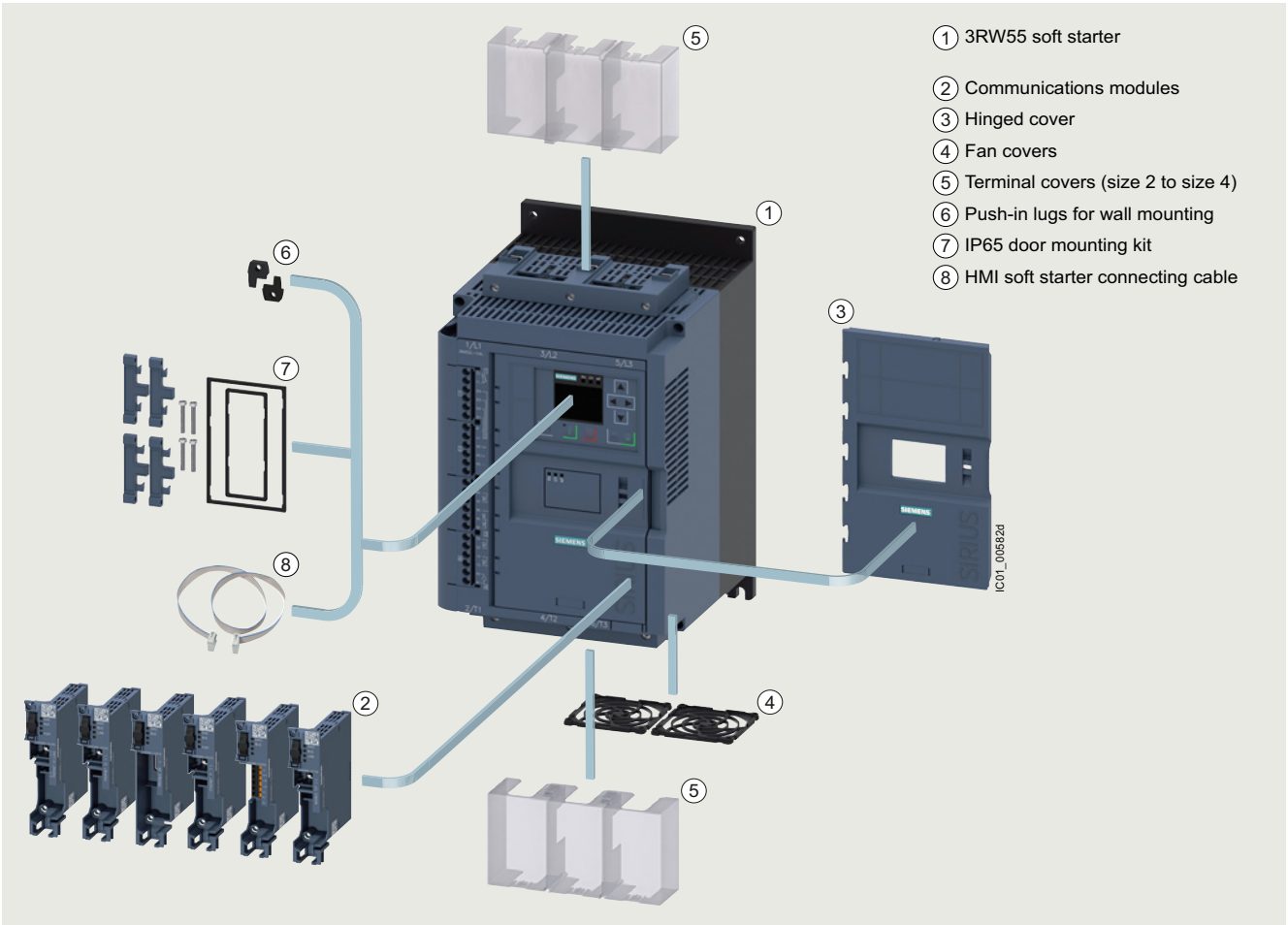
| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | SIRIUS Soft Starter ES (TIA Portal), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| Industry Mall, see www.siemens.com/product?3RW55 | SIRIUS 3RW soft starter block library for SIMATIC PCS 7, see page 6/10 or https://support.industry.siemens.com/cs/ww/en/view/109770336 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw55 | Decision-making support for motor starting – Starting and running three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide |
| Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | SIRIUS Sim, see page 6/10 or https://support.industry.siemens.com/cs/ww/en/view/109763750 |
| Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 | Conversion tool, see www.siemens.com/conversion-tool |

SIRIUS 3RW55 soft starters device family

Equipped with the utmost functionality, the SIRIUS 3RW55 High Performance soft starters confidently handle even difficult starting and stopping operations. Thanks to innovative torque control, the device can be used for drives with an output of between 5.5 kW and 1 200 kW (at 400 V).

The functions have been specially designed to offer maximum user friendliness. The HMI (with color display, local interface and a slot for micro SD memory card) and plug-in communications modules (PROFINET, PROFIBUS, EtherNet/IP and Modbus) ensure maximum flexibility.

With their modern hybrid switching technology, the SIRIUS 3RW55 soft starters offer efficient switching for long-term, energy-saving use.




SIRIUS 3RW55 High Performance soft starter with accessories (see page 6/37)

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## Benefits

| Product characteristics/function | Performance features/benefits |
|---|---|
| Automatic parameterization | Extremely easy commissioning and reliability even under changing load conditions |
| Hybrid switching technology and 3-phase motor control | Minimum power loss and optimum/symmetrical motor control |
| TIA integration – communications modules optional | Efficient configuration and maximum flexibility in automation engineering |
| Removable HMI with color display, local interface, slot for micro SD memory card | Maximum flexibility with regard to user interface and intuitive menu guidance |
| Pump stop and torque control | Reduced mechanical loading and optimum pump stop control |
| Certified according to ATEX/IECEx directive | Suitable for the starting of explosion-proof motors |
| System redundancy S2 | Simple and straight-forward integration into fault-tolerant automation systems |
| Direct integration into MindSphere via the OPC UA server | Worldwide data availability for optimal plant operation |

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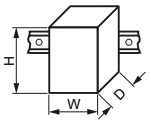
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25099/td<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109753752 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25099/faq<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| Type | | 3RW551. | | 3RW552., 3RW553. | | 3RW554. | | 3RW555. | |
|---|---|---|---|---|---|---|---|---|---|
| | | -.HA.4 | -.HA.5 | -.HA.4 | -.HA.6 | -.HA.4 | -.HA.6 | -.HA.4 | -.HA.6 |
| **Installation/fixing/dimensions** | | | | | | | | | |
| **Width x height x depth** | mm | 170 x 275 x 152 | | 185 x 306 x 203 | | 210 x 393 x 203 | | 478 x 764 x 241 | |
|  | | | | | | | | | |
| **Type of mounting** | | Screw fixing | | | | | | | |
| **Mounting position** | | Vertical (can be rotated +/- 90° and tilted +/- 22.5° forward or backward) | | | | | | | |
| **Distance to be maintained with side-by-side mounting** | | | | | | | | | |
| • Above | mm | 100 | | | | | | | |
| • At the side | mm | 5 | | | | | | | |
| • Below | mm | 75 | | | | | | | |
| **Installation altitude at height above sea level, maximum**[1] | m | 5 000 | | 2 000 | | 5 000 | 2 000 | 5 000 | 2 000 |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | IP00 (IP20 with cover) | | | | IP00 | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | | Finger-safe for vertical touching from the front with cover | | | | -- | |
| **Ambient conditions** | | | | | | | | | |
| **Ambient temperature** | | | | | | | | | |
| • During operation[2] | °C | -25 ... +60 | | | | | | | |
| • During storage and transport | °C | -40 ... +80 | -25 ... +80 | -40 ... +80 | | | | | |
| **Environmental category according to IEC 60721** | | | | | | | | | |
| • During operation | | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 | | | | | | | |
| • During storage | | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4 | | | | | | | |
| • During transport | | 2K2, 2C1, 2S1, 2M2 (max. height of fall 0.3 m) | | | | | | | |

1) Derating from 1 000 m, see characteristic curve on page 6/8.
2) Note derating above 40 °C.

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| Type | | 3RW55..-.HA0. | 3RW55..-.HA1. |
|---|---|---|---|
| **Control circuit/control** | | | |
| **Control supply voltage** | | | |
| • At AC/DC | V | 24/24 | --/-- |
| • At AC | V | -- | 110 ... 250 |
| • Relative negative tolerance/relative positive tolerance with AC | % | -20/20 | -15/10 |
| • Relative negative tolerance/relative positive tolerance with DC | % | -20/20 | --/-- |
| **Frequency of the control supply voltage** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Type of overvoltage protection** | | Varistors | |
| **Type of short-circuit protection for control circuit**[1] | | Fuse 4 A gG ($I_{cu}$ =1 kA), fuse 6 A quick-response ($I_{cu}$ =1 kA), MCB C1 ($I_{cu}$ = 600 A), MCB C6 ($I_{cu}$ = 300 A) | |

1) Not included in scope of supply.

| Type | | 3RW55..-.HA.4 | 3RW55..-.HA.5 | 3RW55..-.HA.6 |
|---|---|---|---|---|
| **Power electronics** | | | | |
| **Operational voltage** | V | 200 ... 480 | 200 ... 600 | 200 ... 690 |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | | |
| **Operational voltage for inside-delta circuit** | V | 200 ... 480 | 200 ... 600 | |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | | |
| **Operating frequency** | Hz | 50 ... 60 | | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | | |
| **Minimum load [% of $I_M$]**[1] | % | 10 | | |
| **Maximum cable length between soft starter and motor** | m | 800 | | |

1) Relative to set $I_e$.

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| Type | | 3RW5513 | 3RW5514 | 3RW5515 | 3RW5516 | 3RW5517 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 13 | 18 | 25 | 32 | 38 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (CLASS 10A)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 |
| - Start-up time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| **Normal starting (CLASS 10E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 13 | 13 | 13 | 13 | 13 |
| - Start-up time 20 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| **Heavy starting (CLASS 20E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 29.6/27.2/23.6 | 33.5/30.5/27.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (CLASS 30E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 26/23.6/21.2 | 29/26/23 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| - Start-up time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 2.5/13 | 3.5/18 | 5/25 | 6.5/32 | 7.5/38 |
| • Minimum/maximum in inside-delta circuits | A | 4.3/22.5 | 6.1/31.1 | 8.7/43.3 | 11.3/55.4 | 13/65.8 |

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| Type | | 3RW5521 | 3RW5524 | 3RW5525 | 3RW5526 | 3RW5527 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 25 | 47 | 63 | 77 | 93 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 25/22.3/19.6 | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (CLASS 10A)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 25/22.3/19.6 | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 |
| - Start-up time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| **Normal starting (CLASS 10E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 25/22.3/19.6 | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 13 | 13 | 13 | 13 | 13 |
| - Start-up time 20 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| **Heavy starting (CLASS 20E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 25/22.3/19.6 | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (CLASS 30E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 25/22.3/19.6 | 43.4/38/34.4 | 53/48/43 | 68/62/56 | 82.5/75.5/65 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| - Start-up time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 5/25 | 10/47 | 13/63 | 16/77 | 19/93 |
| • Minimum/maximum in inside-delta circuits | A | 8.7/43.3 | 17.3/81.4 | 22.5/109 | 27.7/133 | 32.9/161 |

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| Type | | 3RW5534 | 3RW5535 | 3RW5536 |
|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 113 | 143 | 171 |
| **Power electronics** | | | | |
| **Load rating with rated operational current $I_e$** | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 113/101/89 | 143/128/118 | 171/153/141 |
| ***Permissible rated motor current and starts/h*** | | | | |
| **Normal starting (CLASS 10A)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 |
| • 350% $I_M$ | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 28 |
| - Start-up time 10 s | 1/h | 10 | 10 | 10 |
| **Normal starting (CLASS 10E)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 |
| • 350% $I_M$ | | | | |
| - Start-up time 10 s | 1/h | 13 | 13 | 13 |
| - Start-up time 20 s | 1/h | 4 | 4 | 4 |
| **Heavy starting (CLASS 20E)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 109/97/85 | 128/113/103 | 141/129/117 |
| • 300% $I_M$ | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 |
| • 350% $I_M$ | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 |
| **Heavy starting (CLASS 30E)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 89/81/74 | 108/98/88 | 117/105/93 |
| • 300% $I_M$ | | | | |
| - Start-up time 30 s | 1/h | 7 | 7 | 7 |
| - Start-up time 60 s | 1/h | 3 | 3 | 3 |
| • 350% $I_M$ | | | | |
| - Start-up time 30 s | 1/h | 4 | 4 | 4 |
| - Start-up time 60 s | 1/h | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | |
| • Minimum/maximum | A | 23/113 | 29/143 | 34/171 |
| • Minimum/maximum in inside-delta circuits | A | 39.8/195 | 50.2/247 | 58.9/296 |

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| Type | | 3RW5543 | 3RW5544 | 3RW5545 | 3RW5546 | 3RW5547 | 3RW5548 |
|---|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 210 | 250 | 315 | 370 | 470 | 570 |
| **Power electronics** | | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| ***Permissible rated motor current and starts/h*** | | | | | | | |
| **Normal starting (CLASS 10A)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 | 43 | 40 | 20 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 | 18 | 17 | 6 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 28 | 28 | 26 | 9 |
| - Start-up time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 | 1 |
| **Normal starting (CLASS 10E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 551/490/445 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 | 21 | 17 | 8 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 | 8 | 6 | 1 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 10 s | 1/h | 13 | 13 | 13 | 13 | 10 | 2 |
| - Start-up time 20 s | 1/h | 4 | 4 | 4 | 4 | 2 | -- |
| **Heavy starting (CLASS 20E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 162/146/130 | 200/180/160 | 231/207/183 | 258/230/202 | 272/254/236 | 284/262/240 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (CLASS 30E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 138/122/106 | 160/140/120 | 183/159/135 | 202/174/160 | 210/190/170 | 220/200/180 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| - Start-up time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | | |
| • Minimum/maximum | A | 42/210 | 50/250 | 63/315 | 74/370 | 94/470 | 114/570 |
| • Minimum/maximum in inside-delta circuits | A | 72.7/363 | 86.6/433 | 109.1/545 | 128.2/640 | 162.8/814 | 197.5/987 |

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| Type | | 3RW5552 | 3RW5553 | 3RW5554 | 3RW5556 | 3RW5558 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 630 | 720 | 840 | 1 100 | 1 280 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 630/561/510 | 720/641/580 | 840/748/670 | 1 100/979/890 | 1 280/1 139/1 030 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (CLASS 10A)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 630/561/510 | 720/641/580 | 840/748/670 | 1 100/979/890 | 1 280/1 139/1 030 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 42 | 43 | 32 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 | 18 | 12 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 25 | 27 | 17 |
| - Start-up time 10 s | 1/h | 10 | 10 | 10 | 9 | 4 |
| **Normal starting (CLASS 10E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 630/561/510 | 720/641/580 | 840/748/670 | 1 100/979/890 | 1 225/1 130/1 030 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 19 | 18 | 15 |
| - Start-up time 20 s | 1/h | 8 | 8 | 7 | 7 | 5 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 13 | 13 | 10 | 9 | 1 |
| - Start-up time 20 s | 1/h | 4 | 4 | 2 | 2 | 1 |
| **Heavy starting (CLASS 20E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 500/450/400 | 520/470/420 | 570/520/470 | 920/840/760 | 980/900/810 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (CLASS 30E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 380/340/300 | 400/360/320 | 420/380/340 | 740/670/600 | 790/720/650 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| - Start-up time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 114/630 | 144/720 | 168/840 | 220/1 100 | 258/1 280 |
| • Minimum/maximum in inside-delta circuits | A | 197.5/987 | 249.4/1 247 | 291/1 454 | 381.1/1 905 | 446.9/2 217 |

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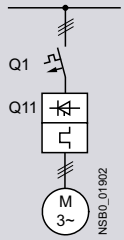
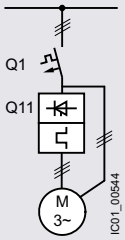
***Motor feeders according to IEC with 3RV2 motor starter protectors/3VA circuit breakers (without semiconductor protection)***

Type of coordination "1", CLASS 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders
with soft starters, see page 6/12.




| Soft starters | Motor starter protectors/circuit breakers | | | | Motor starter protectors/circuit breakers | | | |
|---|---|---|---|---|---|---|---|---|
| | for 400 V systems | | for 500 V systems | | for 400 V systems | | for 500 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | |
| **3RW5513** | 3RV2032-4TA10 | 65 | 3RV2032-4TA10 | 18 | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 18 |
| **3RW5514** | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 15 | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 |
| **3RW5515** | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 15 |
| **3RW5516** | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 10 | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 |
| **3RW5517** | 3RV2032-4WA10 | 65 | 3RV2032-4WA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5521** | -- | -- | -- | -- | -- | -- | -- | -- |
| **3RW5524** | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5525** | 3VA2163-7MN32-0AA0 | 65 | 3VA2163-7MN32-0AA0 | 20 | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 |
| **3RW5526** | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 | 3VA2216-7MN32-0AA0 | 65 | 3VA2216-7MN32-0AA0 | 20 |
| **3RW5527** | 3VA2216-7MN32-0AA0 | 15 | 3VA2216-7MN32-0AA0 | 10 | 3VA2220-7MN32-0AA0 | 15 | 3VA2220-7MN32-0AA0 | 10 |
| **3RW5534** | 3VA2216-7MN32-0AA0 | 65 | -- | -- | 3VA2220-7MN32-0AA0 | 65 | -- | -- |
| **3RW5535** | 3VA2220-7MN32-0AA0 | 65 | -- | -- | 3VA2325-7MN32-0AA0 | 65 | -- | -- |
| **3RW5536** | 3VA2325-7MN32-0AA0 | 30 | 3VA2325-7MN32-0AA0 | 10 | 3VA2440-7MN32-0AA0 | 30 | 3VA2440-7MN32-0AA0 | 10 |
| **3RW5543** | 3VA2325-7MN32-0AA0 | 65 | 3VA2325-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5544** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 |
| **3RW5545** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5546** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5547** | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |
| **3RW5548** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |
| **3RW5552** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 |
| **3RW5553** | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 |
| **3RW5554** | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 |
| **3RW5556** | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | -- | -- | -- | -- |
| **3RW5558** | 3VA2716-7AB05-0AA0 | 65 | 3VA2716-7AB05-0AA0 | 65 | -- | -- | -- | -- |

Note:

The service factor and measurement inaccuracies, for example, have been taken into account for the selection of the specified motor starter protectors/circuit breakers; the specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

When using braking functions, the use of fuses is recommended to avoid the risk of false tripping of 3VA circuit breakers with electronic motor protection function during braking.

In motor feeder tests with soft starters conducted in 690 V systems, demonstrable short-circuit breaking capacities could only be achieved using fuses ($I_q$ > 5 to 10 kA).

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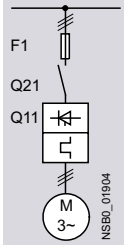
***Motor feeders according to IEC with 3NA3 fuses***

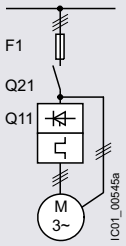
gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

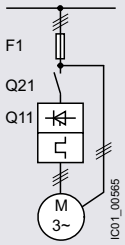
Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** | **Line contactor (optional)** | | **gG class fuse** | **Line contactor (optional)** | | | |
|---|---|---|---|---|---|---|---|---|
| | for systems up to 690 V | for systems up to 480 V | for systems up to 690 V | for systems up to 600 V | for systems up to 480 V in the supply cable | for systems up to 600 V in the supply cable | for systems up to 480 V in the delta | for systems up to 600 V in the delta |
| Q11 | F1 | Q21 | Q21 | F1 | Q21 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | **Inside-delta circuit** | | | | |
| **3RW5513** | 3NA3820-6 | 3RT2025 | 3RT2025 | 3NA3820-6 | 3RT2027 | 3RT2035 | 3RT2025 | 3RT2025 |
| **3RW5514** | 3NA3820-6 | 3RT2026 | 3RT2027 | 3NA3820-6 | 3RT2027 | 3RT2037 | 3RT2026 | 3RT2027 |
| **3RW5515** | 3NA3822-6 | 3RT2027 | 3RT2037 | 3NA3822-6 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5516** | 3NA3824-6 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3RT2037 | 3RT2038 | 3RT2035 | 3RT2037 |
| **3RW5517** | 3NA3824-6 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3RT2038 | 3RT2046 | 3RT2035 | 3RT2037 |
| **3RW5521** | 3NA3824-6 | 3RT2027 | 3RT2037 | 3NA3824-6 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5524** | 3NA3824-6 | 3RT2036 | 3RT2037 | 3NA3824-6 | 3RT2046 | 3RT2047 | 3RT2036 | 3RT2037 |
| **3RW5525** | 3NA3830-6 | 3RT2037 | 3RT2046 | 3NA3830-6 | 3RT2047 | 3RT1054 | 3RT2037 | 3RT2046 |
| **3RW5526** | 3NA3132-6 | 3RT2038 | 3RT2046 | 3NA3132-6 | 3RT1055 | 3RT1055 | 3RT2038 | 3RT2046 |
| **3RW5527** | 3NA3136-6 | 3RT2046 | 3RT2047 | 3NA3136-6 | 3RT1056 | 3RT1056 | 3RT2046 | 3RT2047 |
| **3RW5534** | 3NA3244-6 | 3RT1054 | 3RT1054 | 3NA3244-6 | 3RT1064 | 3RT1064 | 3RT1054 | 3RT1054 |
| **3RW5535** | 3NA3244-6 | 3RT1055 | 3RT1055 | 3NA3244-6 | 3RT1065 | 3RT1065 | 3RT1055 | 3RT1055 |
| **3RW5536** | 3NA3365-6 | 3RT1056 | 3RT1064 | 3NA3365-6 | 3RT1066 | 3RT1075 | 3RT1056 | 3RT1064 |
| **3RW5543** | 2 x 3NA3354-6 | 3RT1064 | 3RT1064 | 2 x 3NA3354-6 | 3RT1075 | 3RT1075 | 3RT1064 | 3RT1064 |
| **3RW5544** | 2 x 3NA3354-6 | 3RT1065 | 3RT1065 | 2 x 3NA3354-6 | 3RT1076 | 3RT1076 | 3RT1065 | 3RT1065 |
| **3RW5545** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3TF68 | 3TF68 | 3RT1075 | 3RT1075 |
| **3RW5546** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3TF69 | 3TF69 | 3RT1075 | 3RT1075 |
| **3RW5547** | 2 x 3NA3365-6 | 3RT1076 | 3RT1276 | 2 x 3NA3365-6 | 3TF69 | 3TF69 | 3RT1076 | 3RT1276 |
| **3RW5548** | 2 x 3NA3365-6 | 3TF68 | 3TF68 | 2 x 3NA3365-6 | -- | -- | 3TF68 | 3TF68 |
| **3RW5552** | 2 x 3NA3365-6 | 3TF68 | 3TF69 | -- | -- | -- | 3TF68 | 3TF69 |
| **3RW5553** | 2 x 3NA3365-6 | 3TF69 | 3TF69 | -- | -- | -- | 3TF69 | 3TF69 |
| **3RW5554** | 2 x 3NA3365-6 | -- | -- | -- | -- | -- | -- | -- |
| **3RW5556** | 3 x 3NA3365-6 | -- | -- | -- | -- | -- | -- | -- |
| **3RW5558** | 3 x 3NA3365-6 | -- | -- | -- | -- | -- | -- | -- |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

In inside-delta circuits, motor feeders with soft starters can only be operated in systems with up to 600 V.

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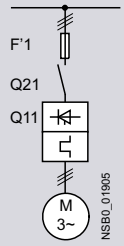
***Motor feeders according to IEC with 3NE1/3NB3 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gR/gS class fuse | Line contactor (optional) | |
|---|---|---|---|
| | for systems up to 690 V | for systems up to 480 V | for systems up to 690 V |
| Q11 | F'1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | |
| **3RW5513** | 3NE1815-0 | 3RT2025 | 3RT2025 |
| **3RW5514** | 3NE1802-0 | 3RT2026 | 3RT2027 |
| **3RW5515** | 3NE1817-0 | 3RT2027 | 3RT2037 |
| **3RW5516** | 3NE1818-0 | 3RT2035 | 3RT2037 |
| **3RW5517** | 3NE1820-0 | 3RT2035 | 3RT2037 |
| **3RW5521** | 3NE1817-0 | 3RT2027 | 3RT2037 |
| **3RW5524** | 3NE1021-2 | 3RT2036 | 3RT2037 |
| **3RW5525** | 3NE1022-0 | 3RT2037 | 3RT2046 |
| **3RW5526** | 3NE1224-0 | 3RT2038 | 3RT2046 |
| **3RW5527** | 3NE1224-0 | 3RT2046 | 3RT2047 |
| **3RW5534** | 3NE1225-0 | 3RT1054 | 3RT1054 |
| **3RW5535** | 3NE1227-0 | 3RT1055 | 3RT1055 |
| **3RW5536** | 3NE1230-0 | 3RT1056 | 3RT1064 |
| **3RW5543** | 3NE1230-2[1)] | 3RT1064 | 3RT1064 |
| **3RW5544** | 3NE1331-0 | 3RT1065 | 3RT1065 |
| **3RW5545** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5546** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5547** | 3NE1436-2 | 3RT1076 | 3RT1276 |
| **3RW5548** | 3NE1437-2 | 3TF68 | 3TF68 |
| **3RW5552** | 3NB3350-1KK26 | 3TF68 | 3TF69 |
| **3RW5553** | 3NB3351-1KK26 | 3TF69 | 3TF69 |
| **3RW5554** | 3NB3351-1KK26 | -- | -- |
| **3RW5556** | 3NB3354-1KK26 | -- | -- |
| **3RW5558** | 3NB3357-1KK26 | -- | -- |

[1)] For systems up to 500 V.

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

In inside-delta circuits, a gR/gS class full-range fuse could not provide the semiconductor protection of the delta-connected soft starter with a short-circuit breaking capacity that is adequate for practical use. In this case, we recommend using aR class partial-range fuses for semiconductor protection for type of coordination "2" (see page 6/27).

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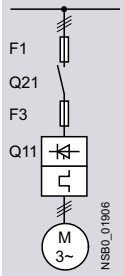
***Motor feeders according to IEC with 3NE8/3NE3/3NC3 fuses***

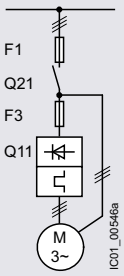
aR class partial-range fuses for semiconductor protection

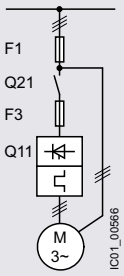
Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** | **aR class fuse** | **Line contactor (optional)** | | **gG class fuse** | **aR class fuse** | **Line contactor (optional)** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | for systems up to 690 V | for systems up to 690 V | for systems up to 480 V | for systems up to 690 V | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V in the supply cable | for systems up to 600 V in the supply cable | for systems up to 480 V in the delta | for systems up to 600 V in the delta |
| Q11 | F1 | F3 | Q21 | Q21 | F1 | F3 | Q21 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | | | |
| **3RW5513** | 3NA3820-6 | 3NE8017-1 | 3RT2025 | 3RT2025 | 3NA3820-6 | 3NE8017-1 | 3RT2027 | 3RT2035 | 3RT2025 | 3RT2025 |
| **3RW5514** | 3NA3820-6 | 3NE8020-1 | 3RT2026 | 3RT2027 | 3NA3820-6 | 3NE8020-1 | 3RT2027 | 3RT2037 | 3RT2026 | 3RT2027 |
| **3RW5515** | 3NA3822-6 | 3NE8021-1 | 3RT2027 | 3RT2037 | 3NA3822-6 | 3NE8021-1 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5516** | 3NA3824-6 | 3NE8022-1 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3NE8022-1 | 3RT2037 | 3RT2038 | 3RT2035 | 3RT2037 |
| **3RW5517** | 3NA3824-6 | 3NE8024-1 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3NE8024-1 | 3RT2038 | 3RT2046 | 3RT2035 | 3RT2037 |
| **3RW5521** | 3NA3824-6 | 3NE8021-1 | 3RT2027 | 3RT2037 | 3NA3824-6 | 3NE8021-1 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5524** | 3NA3824-6 | 3NE8024-1 | 3RT2036 | 3RT2037 | 3NA3824-6 | 3NE8024-1 | 3RT2046 | 3RT2047 | 3RT2036 | 3RT2037 |
| **3RW5525** | 3NA3830-6 | 3NE3227 | 3RT2037 | 3RT2046 | 3NA3830-6 | 3NE3227 | 3RT2047 | 3RT1054 | 3RT2037 | 3RT2046 |
| **3RW5526** | 3NA3132-6 | 3NE3227 | 3RT2038 | 3RT2046 | 3NA3132-6 | 3NE3227 | 3RT1055 | 3RT1055 | 3RT2038 | 3RT2046 |
| **3RW5527** | 3NA3136-6 | 3NE3227 | 3RT2046 | 3RT2047 | 3NA3136-6 | 3NE3227 | 3RT1056 | 3RT1056 | 3RT2046 | 3RT2047 |
| **3RW5534** | 3NA3244-6 | 3NE3231 | 3RT1054 | 3RT1054 | 3NA3244-6 | 3NE3231 | 3RT1064 | 3RT1064 | 3RT1054 | 3RT1054 |
| **3RW5535** | 3NA3244-6 | 3NE3233 | 3RT1055 | 3RT1055 | 3NA3244-6 | 3NE3233 | 3RT1065 | 3RT1065 | 3RT1055 | 3RT1055 |
| **3RW5536** | 3NA3365-6 | 3NE3334-0B | 3RT1056 | 3RT1064 | 3NA3365-6 | 3NE3334-0B | 3RT1066 | 3RT1075 | 3RT1056 | 3RT1064 |
| **3RW5543** | 2 x 3NA3354-6 | 3NE3333 | 3RT1064 | 3RT1064 | 2 x 3NA3354-6 | 3NE3333 | 3RT1075 | 3RT1075 | 3RT1064 | 3RT1064 |
| **3RW5544** | 2 x 3NA3354-6 | 3NE3335 | 3RT1065 | 3RT1065 | 2 x 3NA3354-6 | 3NE3335 | 3RT1076 | 3RT1076 | 3RT1065 | 3RT1065 |
| **3RW5545** | 2 x 3NA3365-6 | -- | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | -- | 3TF68 | 3TF68 | 3RT1075 | 3RT1075 |
| **3RW5546** | 2 x 3NA3365-6 | -- | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | -- | 3TF69 | 3TF69 | 3RT1075 | 3RT1075 |
| **3RW5547** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1076 | 3RT1276 | 2 x 3NA3365-6 | 3NE3340-8 | 3TF69 | 3TF69 | 3RT1076 | 3RT1276 |
| **3RW5548** | 2 x 3NA3365-6 | 3NC3342-1U | 3TF68 | 3TF68 | 2 x 3NA3365-6 | 3NC3342-1U | -- | -- | 3TF68 | 3TF68 |
| **3RW5552** | 2 x 3NA3365-6 | 3NC3343-1U | 3TF68 | 3TF69 | -- | 3NC3343-1U | -- | -- | 3TF68 | 3TF69 |
| **3RW5553** | 2 x 3NA3365-6 | 3NC3343-1U | 3TF69 | 3TF69 | -- | 3NC3343-1U | -- | -- | 3TF69 | 3TF69 |
| **3RW5554** | 2 x 3NA3365-6 | 3NC3343-1U | -- | -- | -- | 3NC3343-1U | -- | -- | -- | -- |
| **3RW5556** | 3 x 3NA3365-6 | 3 x 3NE3340-8 | -- | -- | -- | 3 x 3NE3340-8 | -- | -- | -- | -- |
| **3RW5558** | 3 x 3NA3365-6 | 3 x 3NE3340-8 | -- | -- | -- | 3 x 3NE3340-8 | -- | -- | -- | -- |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For CLASS 10 applications, as an alternative to the 3NA3 gG class full-range fuses for cable and line protection (F1), 3RV2 motor starter protectors/3VA circuit breakers can also be used, possibly with reduced short-circuit breaking capacity (see page 6/24). In these cases, optional line contactors can be dispensed with.

In inside-delta circuits, motor feeders with soft starters can only be operated in systems with up to 600 V.

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***Reversing operation with reversing contactors***

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.

(Example circuit, see 3RW55 Equipment Manual, Appendix A.3)

| Soft starters | Reversing contactor assembly | | Reversing contactor | |
|---|---|---|---|---|
| | for systems up to 480 V | for systems up to 690 V | for systems up to 480 V | for systems up to 690 V |
| Q11 | Q21/Q22 | Q21/Q22 | Q21/Q22 | Q21/Q22 |
| Type | Type | Type | Type | Type |
| **3RW5513** | 3RA2325 | 3RA2325 | 3RT2025 | 3RT2025 |
| **3RW5514** | 3RA2326 | 3RA2327 | 3RT2026 | 3RT2027 |
| **3RW5515** | 3RA2327 | 3RA2337 | 3RT2027 | 3RT2037 |
| **3RW5516** | 3RA2335 | 3RA2337 | 3RT2035 | 3RT2037 |
| **3RW5517** | 3RA2335 | 3RA2337 | 3RT2035 | 3RT2037 |
| **3RW5521** | 3RA2327 | 3RA2337 | 3RT2027 | 3RT2037 |
| **3RW5524** | 3RA2336 | 3RA2337 | 3RT2036 | 3RT2037 |
| **3RW5525** | 3RA2337 | 3RA2346 | 3RT2037 | 3RT2046 |
| **3RW5526** | 3RA2338 | 3RA2346 | 3RT2038 | 3RT2046 |
| **3RW5527** | 3RA2346 | 3RA2347 | 3RT2046 | 3RT2047 |
| **3RW5534** | -- | -- | 3RT1054 | 3RT1054 |
| **3RW5535** | -- | -- | 3RT1055 | 3RT1055 |
| **3RW5536** | -- | -- | 3RT1056 | 3RT1064 |
| **3RW5543** | -- | -- | 3RT1064 | 3RT1064 |
| **3RW5544** | -- | -- | 3RT1065 | 3RT1065 |
| **3RW5545** | -- | -- | 3RT1075 | 3RT1075 |
| **3RW5546** | -- | -- | 3RT1075 | 3RT1075 |
| **3RW5547** | -- | -- | 3RT1076 | 3RT1276 |
| **3RW5548** | -- | -- | 3TF68 | 3TF68 |
| **3RW5552** | -- | -- | 3TF68 | 3TF69 |
| **3RW5553** | -- | -- | 3TF69 | 3TF69 |
| **3RW5554** | -- | -- | -- | -- |
| **3RW5556** | -- | -- | -- | -- |
| **3RW5558** | -- | -- | -- | -- |

***DC braking with braking contactors***

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.

(Example circuit, see 3RW55 Equipment Manual, Appendix A.3)

| Soft starters | DC braking contactor | DC braking contactor assembly | | | |
|---|---|---|---|---|---|
| | for systems up to 400 V | for systems up to 480 V | | for systems up to 690 V | |
| | with 2 NC contacts + 2 NO contacts parallel | with 3 NO contacts parallel | with 3 NO contacts parallel | with 3 NO contacts parallel | with 3 NO contacts parallel |
| Q11 | Q93 | Q91 | Q92 | Q91 | Q92 |
| Type | Type | Type | Type | Type | Type |
| **3RW5513** | 3RT2517 | 3RT2015 | 3RT2016 | 3RT2015 | 3RT2016 |
| **3RW5514** | 3RT2518 | 3RT2015 | 3RT2017 | 3RT2015 | 3RT2023 |
| **3RW5515** | 3RT2526 | 3RT2015 | 3RT2025 | 3RT2015 | 3RT2025 |
| **3RW5516** | 3RT2526 | 3RT2015 | 3RT2025 | 3RT2015 | 3RT2027 |
| **3RW5517** | 3RT2535 | 3RT2015 | 3RT2027 | 3RT2015 | 3RT2027 |
| **3RW5521** | 3RT2526 | 3RT2015 | 3RT2025 | 3RT2015 | 3RT2025 |
| **3RW5524** | 3RT2535 | 3RT2016 | 3RT2027 | 3RT2016 | 3RT2035 |
| **3RW5525** | -- | 3RT2024 | 3RT2027 | 3RT2024 | 3RT2037 |
| **3RW5526** | -- | 3RT2025 | 3RT2035 | 3RT2025 | 3RT2037 |
| **3RW5527** | -- | 3RT2027 | 3RT2036 | 3RT2027 | 3RT2037 |
| **3RW5534** | -- | 3RT2035 | 3RT2037 | 3RT2035 | 3RT2038 |
| **3RW5535** | -- | 3RT2036 | 3RT2038 | 3RT2036 | 3RT2046 |
| **3RW5536** | -- | 3RT2037 | 3RT2046 | 3RT2037 | 3RT2047 |
| **3RW5543** | -- | 3RT2045 | 3RT2047 | 3RT2045 | 3RT1054 |
| **3RW5544** | -- | 3RT2045 | 3RT1055 | 3RT2045 | 3RT1055 |
| **3RW5545** | -- | 3RT2446 | 3RT1056 | 3RT2446 | 3RT1056 |
| **3RW5546** | -- | 3RT1055 | 3RT1056 | 3RT1055 | 3RT1064 |
| **3RW5547** | -- | 3RT1456 | 3RT1065 | 3RT1456 | 3RT1065 |
| **3RW5548** | -- | 3RT1456 | 3RT1066 | 3RT1456 | 3RT1075 |
| **3RW5552** | -- | 3RT1065 | 3RT1075 | 3RT1065 | 3RT1075 |
| **3RW5553** | -- | 3RT1065 | 3RT1075 | 3RT1065 | 3RT1075 |
| **3RW5554** | -- | 3RT1466 | 3RT1076 | 3RT1466 | 3RT1076 |
| **3RW5556** | -- | 3RT1476 | 3TF68 | 3RT1476 | 3TF68 |
| **3RW5558** | -- | 3RT1476 | 3TF69 | 3RT1476 | 3TF69 |

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## Selection and ordering data

***For normal starting (CLASS 10E)***

3RW551

3RW552.

| At 40 °C | | | | | At 50 °C | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | at 690 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | | |
| 13 | 3 | **5.5** | -- | -- | 11.5 | 2 | 3 | **7.5** | -- | **3RW5513-□HA□4** | | 1 | 1 unit | 42S |
| 18 | 4 | **7.5** | -- | -- | 15.9 | 3 | 5 | **10** | -- | **3RW5514-□HA□4** | | 1 | 1 unit | 42S |
| 25 | 5.5 | **11** | -- | -- | 22.3 | 5 | 7.5 | **15** | -- | **3RW5515-□HA□4** | | 1 | 1 unit | 42S |
| 32 | 7.5 | **15** | -- | -- | 28.4 | 7.5 | 10 | **20** | -- | **3RW5516-□HA□4** | | 1 | 1 unit | 42S |
| 38 | 11 | **18.5** | -- | -- | 33.5 | 10 | 10 | **20** | -- | **3RW5517-□HA□4** | | 1 | 1 unit | 42S |
| 47 | 11 | **22** | -- | -- | 41.6 | 10 | 10 | **30** | -- | **3RW5524-□HA□4** | | 1 | 1 unit | 42S |
| 63 | 18.5 | **30** | -- | -- | 55.5 | 15 | 20 | **40** | -- | **3RW5525-□HA□4** | | 1 | 1 unit | 42S |
| 77 | 22 | **37** | -- | -- | 68 | 20 | 25 | **50** | -- | **3RW5526-□HA□4** | | 1 | 1 unit | 42S |
| 93 | 22 | **45** | -- | -- | 82.5 | 25 | 30 | **60** | -- | **3RW5527-□HA□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Screw terminals
Spring-loaded terminals

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

Article No. extension: **3RW5527-□HA□4** → **1 3** (Type of electrical connection for the control circuit), **0 1** (Control supply voltage)

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

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## 3RW55 soft starters > Standard (inline) circuit *IE3/IE4 ready*

***For normal starting (CLASS 10E)***

3RW553.

3RW554.

3RW555.

| At 40 °C | | | | | At 50 °C | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | at 690 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | | |
| 113 | 30 | **55** | -- | -- | 101 | 30 | 30 | **75** | -- | **3RW5534-☐HA☐4** | | 1 | 1 unit | 42S |
| 143 | 37 | **75** | -- | -- | 128 | 40 | 40 | **100** | -- | **3RW5535-☐HA☐4** | | 1 | 1 unit | 42S |
| 171 | 45 | **90** | -- | -- | 153 | 50 | 50 | **100** | -- | **3RW5536-☐HA☐4** | | 1 | 1 unit | 42S |
| 210 | 55 | **110** | -- | -- | 186 | 60 | 60 | **150** | -- | **3RW5543-☐HA☐4** | | 1 | 1 unit | 42S |
| 250 | 75 | **132** | -- | -- | 220 | 60 | 75 | **150** | -- | **3RW5544-☐HA☐4** | | 1 | 1 unit | 42S |
| 315 | 90 | **160** | -- | -- | 279 | 75 | 100 | **200** | -- | **3RW5545-☐HA☐4** | | 1 | 1 unit | 42S |
| 370 | 110 | **200** | -- | -- | 328 | 100 | 125 | **250** | -- | **3RW5546-☐HA☐4** | | 1 | 1 unit | 42S |
| 470 | 132 | **250** | -- | -- | 416 | 150 | 150 | **350** | -- | **3RW5547-☐HA☐4** | | 1 | 1 unit | 42S |
| 570 | 160 | **315** | -- | -- | 504 | 150 | 200 | **400** | -- | **3RW5548-☐HA☐4** | | 1 | 1 unit | 42S |
| 630 | 200 | **355** | -- | -- | 561 | 200 | 200 | **450** | -- | **3RW5552-☐HA☐4** | | 1 | 1 unit | 42S |
| 720 | 200 | **400** | -- | -- | 641 | 200 | 250 | **500** | -- | **3RW5553-☐HA☐4** | | 1 | 1 unit | 42S |
| 840 | 250 | **450** | -- | -- | 748 | 250 | 300 | **600** | -- | **3RW5554-☐HA☐4** | | 1 | 1 unit | 42S |
| 1 100 | 315 | **560** | -- | -- | 979 | 350 | 400 | **850** | -- | **3RW5556-☐HA☐4** | | 1 | 1 unit | 42S |
| 1 280 | 400 | **710** | -- | -- | 1 139 | 400 | 450 | **1 000** | -- | **3RW5558-☐HA☐4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**2 6**

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**0 1**

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***For normal starting (CLASS 10E)***

3RW551.

3RW552.

| At 40 °C | | | | | At 50 °C | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | at 690 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | | | |
| 13 | 3 | **5.5** | 7.5 | -- | 11.5 | 2 | 3 | **7.5** | 10 | **3RW5513-□HA□5** | | 1 | 1 unit | 42S |
| 18 | 4 | **7.5** | 11 | -- | 15.9 | 3 | 5 | **10** | 10 | **3RW5514-□HA□5** | | 1 | 1 unit | 42S |
| 25 | 5.5 | **11** | 15 | -- | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5515-□HA□5** | | 1 | 1 unit | 42S |
| 32 | 7.5 | **15** | 18.5 | -- | 28.4 | 7.5 | 10 | **20** | 25 | **3RW5516-□HA□5** | | 1 | 1 unit | 42S |
| 38 | 11 | **18.5** | 22 | -- | 33.5 | 10 | 10 | **20** | 30 | **3RW5517-□HA□5** | | 1 | 1 unit | 42S |
| **Operational voltage 200 ... 690 V** | | | | | | | | | | | | | | |
| 25 | 5.5 | **11** | 15 | 22 | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5521-□HA□6** | | 1 | 1 unit | 42S |
| 47 | 11 | **22** | 30 | 45 | 41.6 | 10 | 10 | **30** | 40 | **3RW5524-□HA□6** | | 1 | 1 unit | 42S |
| 63 | 18.5 | **30** | 37 | 55 | 55.5 | 15 | 20 | **40** | 50 | **3RW5525-□HA□6** | | 1 | 1 unit | 42S |
| 77 | 22 | **37** | 45 | 75 | 68 | 20 | 25 | **50** | 60 | **3RW5526-□HA□6** | | 1 | 1 unit | 42S |
| 93 | 22 | **45** | 55 | 90 | 82.5 | 25 | 30 | **60** | 75 | **3RW5527-□HA□6** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Screw terminals
Spring-loaded terminals

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

Article No. positions: 1 3 | 0 1

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3RW55 soft starters > Standard (inline) circuit *IE3/IE4 ready*

***For normal starting (CLASS 10E)***

3RW553.

3RW554.

3RW555.

| At 40 °C | | | | | At 50 °C | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | at 690 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 690 V** | | | | | | | | | | | | | | |
| 113 | 30 | **55** | 75 | 110 | 101 | 30 | 30 | **75** | 100 | **3RW5534-□HA□6** | | 1 | 1 unit | 42S |
| 143 | 37 | **75** | 90 | 132 | 128 | 40 | 40 | **100** | 125 | **3RW5535-□HA□6** | | 1 | 1 unit | 42S |
| 171 | 45 | **90** | 110 | 160 | 153 | 50 | 50 | **100** | 150 | **3RW5536-□HA□6** | | 1 | 1 unit | 42S |
| 210 | 55 | **110** | 132 | 200 | 186 | 60 | 60 | **150** | 150 | **3RW5543-□HA□6** | | 1 | 1 unit | 42S |
| 250 | 75 | **132** | 160 | 250 | 220 | 60 | 75 | **150** | 200 | **3RW5544-□HA□6** | | 1 | 1 unit | 42S |
| 315 | 90 | **160** | 200 | 315 | 279 | 75 | 100 | **200** | 250 | **3RW5545-□HA□6** | | 1 | 1 unit | 42S |
| 370 | 110 | **200** | 250 | 355 | 328 | 100 | 125 | **250** | 300 | **3RW5546-□HA□6** | | 1 | 1 unit | 42S |
| 470 | 132 | **250** | 315 | 400 | 416 | 150 | 150 | **350** | 450 | **3RW5547-□HA□6** | | 1 | 1 unit | 42S |
| 570 | 160 | **315** | 355 | 560 | 504 | 150 | 200 | **400** | 500 | **3RW5548-□HA□6** | | 1 | 1 unit | 42S |
| 630 | 200 | **355** | 400 | 630 | 561 | 200 | 200 | **450** | 600 | **3RW5552-□HA□6** | | 1 | 1 unit | 42S |
| 720 | 200 | **400** | 500 | 710 | 641 | 200 | 250 | **500** | 700 | **3RW5553-□HA□6** | | 1 | 1 unit | 42S |
| 840 | 250 | **450** | 560 | 800 | 748 | 250 | 300 | **600** | 800 | **3RW5554-□HA□6** | | 1 | 1 unit | 42S |
| 1 100 | 315 | **560** | 710 | 1 000 | 979 | 350 | 400 | **850** | 1 100 | **3RW5556-□HA□6** | | 1 | 1 unit | 42S |
| 1 280 | 400 | **710** | 900 | 1 200 | 1 139 | 400 | 450 | **1 000** | 1 250 | **3RW5558-□HA□6** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

Article No. **3RW5534-□HA□6**: **2** = Spring-loaded terminals, **6** = 24 V AC/DC; **0** = Screw terminals, **1** = 110 ... 250 V AC

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

***For normal starting (CLASS 10E)***

3RW551.

3RW552.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | -- | 19.9 | 5 | 5 | **10** | -- | **3RW5513-□HA□4** | | 1 | 1 unit | 42S |
| 31.5 | 7.5 | **15** | -- | 28 | 7.5 | 7.5 | **20** | -- | **3RW5514-□HA□4** | | 1 | 1 unit | 42S |
| 43.3 | 11 | **18.5** | -- | 39 | 10 | 10 | **25** | -- | **3RW5515-□HA□4** | | 1 | 1 unit | 42S |
| 55.4 | 15 | **22** | -- | 49 | 15 | 15 | **30** | -- | **3RW5516-□HA□4** | | 1 | 1 unit | 42S |
| 65.8 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **3RW5517-□HA□4** | | 1 | 1 unit | 42S |
| 81.4 | 22 | **45** | -- | 72 | 20 | 25 | **50** | -- | **3RW5524-□HA□4** | | 1 | 1 unit | 42S |
| 109 | 30 | **55** | -- | 96 | 30 | 30 | **75** | -- | **3RW5525-□HA□4** | | 1 | 1 unit | 42S |
| 133 | 37 | **75** | -- | 118 | 30 | 40 | **75** | -- | **3RW5526-□HA□4** | | 1 | 1 unit | 42S |
| 161 | 45 | **90** | -- | 143 | 40 | 50 | **100** | -- | **3RW5527-□HA□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Screw terminals
Spring-loaded terminals

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

Article No. extension: **3RW5527-□HA□4** — **1 3** (Type of electrical connection for the control circuit), **0 1** (Control supply voltage)

Note:

For the constraints for the motor outputs specified here, see page 6/8.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3RW55 soft starters > Inside-delta circuit *IE3/IE4 ready*

***For normal starting (CLASS 10E)***

3RW553.

3RW554.

3RW555.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| 196 | 55 | **110** | -- | 175 | 50 | 60 | **125** | -- | **3RW5534-□HA□4** | | 1 | 1 unit | 42S |
| 248 | 75 | **132** | -- | 222 | 75 | 75 | **150** | -- | **3RW5535-□HA□4** | | 1 | 1 unit | 42S |
| 296 | 90 | **160** | -- | 265 | 75 | 100 | **200** | -- | **3RW5536-□HA□4** | | 1 | 1 unit | 42S |
| 364 | 110 | **200** | -- | 322 | 100 | 125 | **250** | -- | **3RW5543-□HA□4** | | 1 | 1 unit | 42S |
| 433 | 132 | **250** | -- | 381 | 125 | 150 | **300** | -- | **3RW5544-□HA□4** | | 1 | 1 unit | 42S |
| 546 | 160 | **315** | -- | 483 | 150 | 200 | **400** | -- | **3RW5545-□HA□4** | | 1 | 1 unit | 42S |
| 641 | 200 | **355** | -- | 568 | 200 | 200 | **450** | -- | **3RW5546-□HA□4** | | 1 | 1 unit | 42S |
| 814 | 250 | **400** | -- | 721 | 250 | 250 | **600** | -- | **3RW5547-□HA□4** | | 1 | 1 unit | 42S |
| 987 | 315 | **560** | -- | 873 | 300 | 350 | **750** | -- | **3RW5548-□HA□4** | | 1 | 1 unit | 42S |
| 1 091 | 355 | **630** | -- | 972 | 350 | 400 | **850** | -- | **3RW5552-□HA□4** | | 1 | 1 unit | 42S |
| 1 247 | 400 | **710** | -- | 1 110 | 400 | 450 | **950** | -- | **3RW5553-□HA□4** | | 1 | 1 unit | 42S |
| 1 454 | 450 | **800** | -- | 1 295 | 450 | 550 | **1 150** | -- | **3RW5554-□HA□4** | | 1 | 1 unit | 42S |
| 1 905 | 560 | **1 000** | -- | 1 695 | 600 | 700 | **1 500** | -- | **3RW5556-□HA□4** | | 1 | 1 unit | 42S |
| 2 217 | 710 | **1 200** | -- | 1 973 | 700 | 850 | **1 700** | -- | **3RW5558-□HA□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**3RW5558-□HA□4**
**2** (Type of electrical connection for the control circuit)
**6** (Control supply voltage)

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***For normal starting (CLASS 10E)***

3RW551.

3RW552.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 15 | 19.9 | 5 | 5 | **10** | 15 | **3RW5513-□HA□5** | | 1 | 1 unit | 42S |
| 31.5 | 7.5 | **15** | 18.5 | 28 | 7.5 | 7.5 | **20** | 25 | **3RW5514-□HA□5** | | 1 | 1 unit | 42S |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5515-□HA□5** | | 1 | 1 unit | 42S |
| 55.4 | 15 | **22** | 30 | 49 | 15 | 15 | **30** | 40 | **3RW5516-□HA□5** | | 1 | 1 unit | 42S |
| 65.8 | 18.5 | **30** | 37 | 58 | 15 | 20 | **40** | 50 | **3RW5517-□HA□5** | | 1 | 1 unit | 42S |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5521-□HA□6** | | 1 | 1 unit | 42S |
| 81.4 | 22 | **45** | 45 | 72 | 20 | 25 | **50** | 60 | **3RW5524-□HA□6** | | 1 | 1 unit | 42S |
| 109 | 30 | **55** | 55 | 96 | 30 | 30 | **75** | 75 | **3RW5525-□HA□6** | | 1 | 1 unit | 42S |
| 133 | 37 | **75** | 90 | 118 | 30 | 40 | **75** | 100 | **3RW5526-□HA□6** | | 1 | 1 unit | 42S |
| 161 | 45 | **90** | 110 | 143 | 40 | 50 | **100** | 125 | **3RW5527-□HA□6** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit** (Article No. position 11)
Screw terminals — 1
Spring-loaded terminals — 3

**Control supply voltage** (Article No. position 12)
24 V AC/DC — 0
110 ... 250 V AC — 1

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

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## 3RW55 soft starters > Inside-delta circuit *IE3/IE4 ready*

***For normal starting (CLASS 10E)***

3RW553.

3RW554.

3RW555.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | | |
| 196 | 55 | **110** | 132 | 175 | 50 | 60 | **125** | 150 | **3RW5534-□HA□6** | | 1 | 1 unit | 42S |
| 248 | 75 | **132** | 160 | 222 | 75 | 75 | **150** | 200 | **3RW5535-□HA□6** | | 1 | 1 unit | 42S |
| 296 | 90 | **160** | 200 | 265 | 75 | 100 | **200** | 250 | **3RW5536-□HA□6** | | 1 | 1 unit | 42S |
| 364 | 110 | **200** | 250 | 322 | 100 | 125 | **250** | 300 | **3RW5543-□HA□6** | | 1 | 1 unit | 42S |
| 433 | 132 | **250** | 315 | 381 | 125 | 150 | **300** | 350 | **3RW5544-□HA□6** | | 1 | 1 unit | 42S |
| 546 | 160 | **315** | 355 | 483 | 150 | 200 | **400** | 500 | **3RW5545-□HA□6** | | 1 | 1 unit | 42S |
| 641 | 200 | **355** | 450 | 568 | 200 | 200 | **450** | 600 | **3RW5546-□HA□6** | | 1 | 1 unit | 42S |
| 814 | 250 | **400** | 500 | 721 | 250 | 250 | **600** | 800 | **3RW5547-□HA□6** | | 1 | 1 unit | 42S |
| 987 | 315 | **560** | 630 | 873 | 300 | 350 | **750** | 950 | **3RW5548-□HA□6** | | 1 | 1 unit | 42S |
| 1 091 | 355 | **630** | 710 | 972 | 350 | 400 | **850** | 1 050 | **3RW5552-□HA□6** | | 1 | 1 unit | 42S |
| 1 247 | 400 | **710** | 800 | 1 110 | 400 | 450 | **950** | 1 250 | **3RW5553-□HA□6** | | 1 | 1 unit | 42S |
| 1 454 | 450 | **800** | 900 | 1 295 | 450 | 550 | **1 150** | 1 450 | **3RW5554-□HA□6** | | 1 | 1 unit | 42S |
| 1 905 | 560 | **1 000** | 1 200 | 1 695 | 600 | 700 | **1 500** | 1 900 | **3RW5556-□HA□6** | | 1 | 1 unit | 42S |
| 2 217 | 710 | **1 200** | 1 500 | 1 973 | 700 | 850 | **1 700** | 2 200 | **3RW5558-□HA□6** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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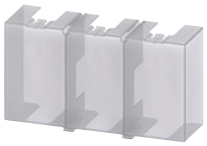
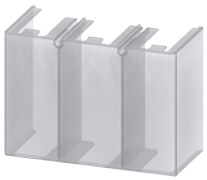
## Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Fan covers** | | | | | | | | | |
| 3RW5983-0FC00 | **Fan cover** | 3RW551 (1x), 3RW552 (2x), 3RW553 (2x) | -- | -- | **3RW5983-0FC00** | | 1 | 1 unit | 42S |
| | | 3RW554 (1x) | -- | -- | **3RW5984-0FC00** | | 1 | 1 unit | 42S |
| | | 3RW555 (3x) | -- | -- | **3RW5985-0FC00** | | 1 | 1 unit | 42S |
| **Terminal covers** | | | | | | | | | |
|  3RW5983-0TC20 | **Terminal cover** | 3RW552 (2x), 3RW553 (2x) | -- | -- | **3RW5983-0TC20** | | 1 | 1 unit | 42S |
|  3RW5984-0TC20 | | 3RW554 (2x) | -- | -- | **3RW5984-0TC20** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | | |
| 3RW5950-0GL20 | **Hinged cover** | 3RW55 | Without cutout | -- | **3RW5950-0GL20** | | 1 | 1 unit | 42S |
| **Communications modules** | | | | | | | | | |
| 3RW5980-0CS00 | **Communications module**[1] | 3RW55 | PROFINET High-Feature with integral switch | -- | **3RW5950-0CH00** | | 1 | 1 unit | 42S |
| | | | PROFINET Standard | -- | **3RW5980-0CS00** | | 1 | 1 unit | 42S |
| | | | PROFIBUS | -- | **3RW5980-0CP00** | | 1 | 1 unit | 42S |
| 3RW5980-0CE00 | | | EtherNet/IP | -- | **3RW5980-0CE00** | | 1 | 1 unit | 42S |
| | | | Modbus RTU | -- | **3RW5980-0CR00** | | 1 | 1 unit | 42S |
| 3RW5980-0CR00 | | | Modbus TCP | -- | **3RW5980-0CT00** | | 1 | 1 unit | 42S |

[1] Use the recommended connection plugs for attaching the bus connecting cable (e.g. angled or suitable for industrial use), see Equipment Manual for the relevant communications module.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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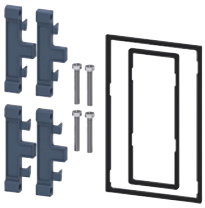
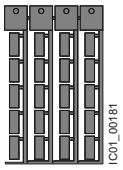
| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | | |
|  3RW5980-0HD00 | **IP65 door mounting kit for HMI modules** | 3RW55 | IP65 | For HMI modules | **3RW5980-0HD00** | | 1 | 1 unit | 42S |
| **Connecting cables** | | | | | | | | | |
| 3UF793.-0BA00-0 | **HMI connecting cable** | 3RW55 | 5 m, round | For door mounting | **3RW5980-0HC60** | | 1 | 1 unit | 42S |
| | | | 2.5 m, round | | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 1.0 m, round | | **3UF7937-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 0.5 m, round | | **3UF7932-0BA00-0** | | 1 | 1 unit | 42J |
| **Further accessories** | | | | | | | | | |
| 3ZY1311-0AA00 | **Push-in lugs for wall mounting** | -- | Two lugs are required per device | For HMI modules and communications modules | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| **Blank labels** | | | | | | | | | |
|   3RT2900-1SB20 | **Unit labeling plates**[1] | -- | 20 mm x 7 mm, titanium gray | For SIRIUS devices | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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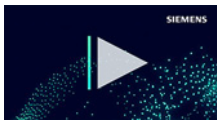
## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | SIRIUS Soft Starter ES (TIA Portal), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| Industry Mall, see www.siemens.com/product?3RW55Failsafe | Decision-making support for motor starting – Starting and running three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw55 | SIRIUS Sim, see page 6/10 or https://support.industry.siemens.com/cs/ww/en/view/109763750 |
| Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | Conversion tool, see www.siemens.com/conversion-tool |
| Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 | |



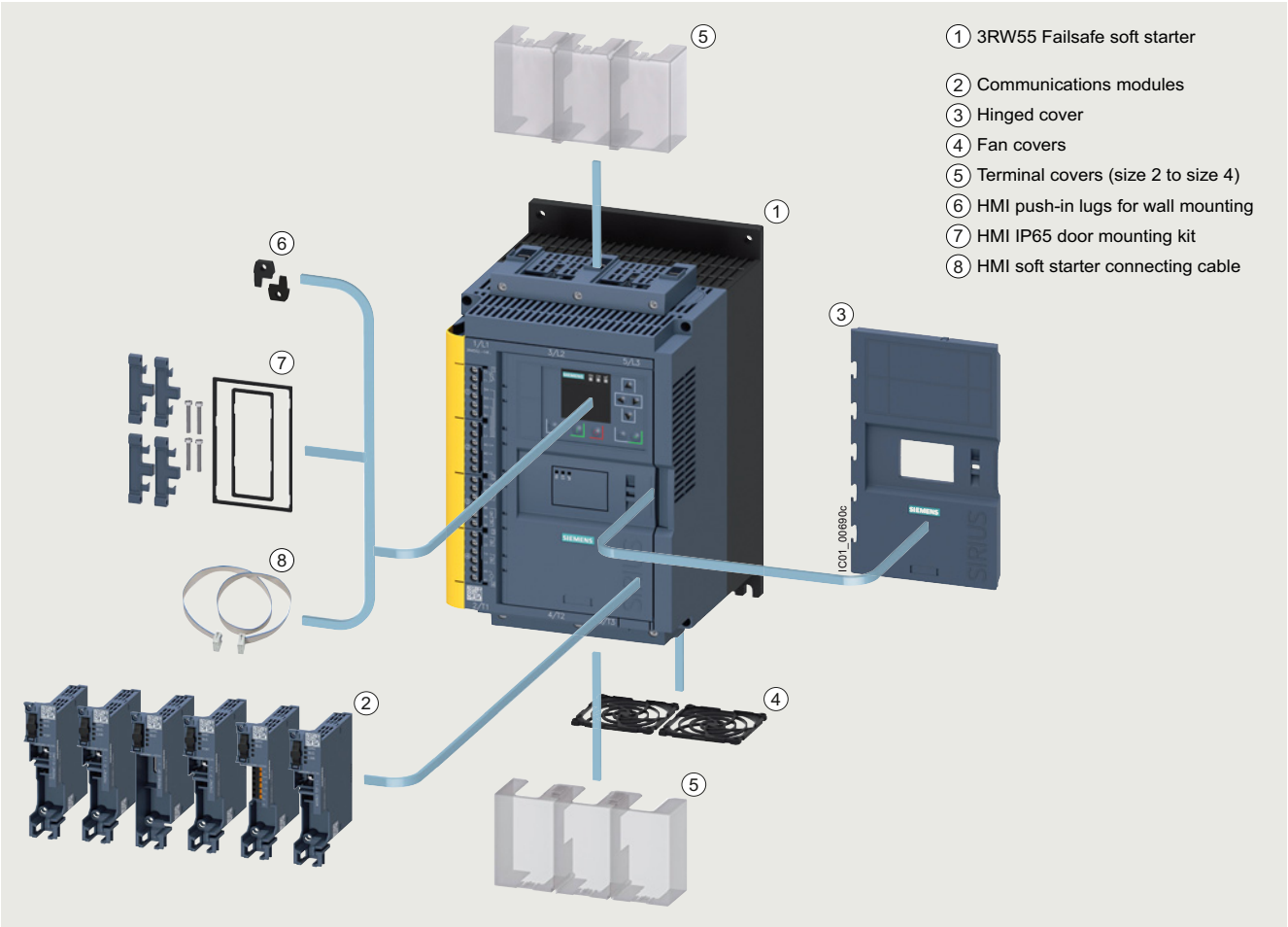

Video: Animation 3RW5 Failsafe soft starter

SIRIUS 3RW55 Failsafe soft starters device family

Equipped with the utmost functionality, the SIRIUS 3RW55 Failsafe High Performance soft starters confidently handle even difficult starting and stopping operations. Thanks to innovative torque control, the device can be used for drives with an output of between 5.5 kW and 560 kW (at 400 V).

The innovative 3RW55 Failsafe soft starter features an integrated fail-safe digital input for directly connecting the EMERGENCY STOP, and thus covers SIL 1 STO applications. The HMI (with color display, local interface and a slot for micro SD memory card) and plug-in communications modules (PROFINET, PROFIBUS, EtherNet/IP and Modbus) ensure maximum flexibility.

With their modern hybrid switching technology, the 3RW55 Failsafe soft starters offer efficient switching for long-term, energy-saving use.




SIRIUS 3RW55 Failsafe High Performance soft starter with accessories (see page 6/53)

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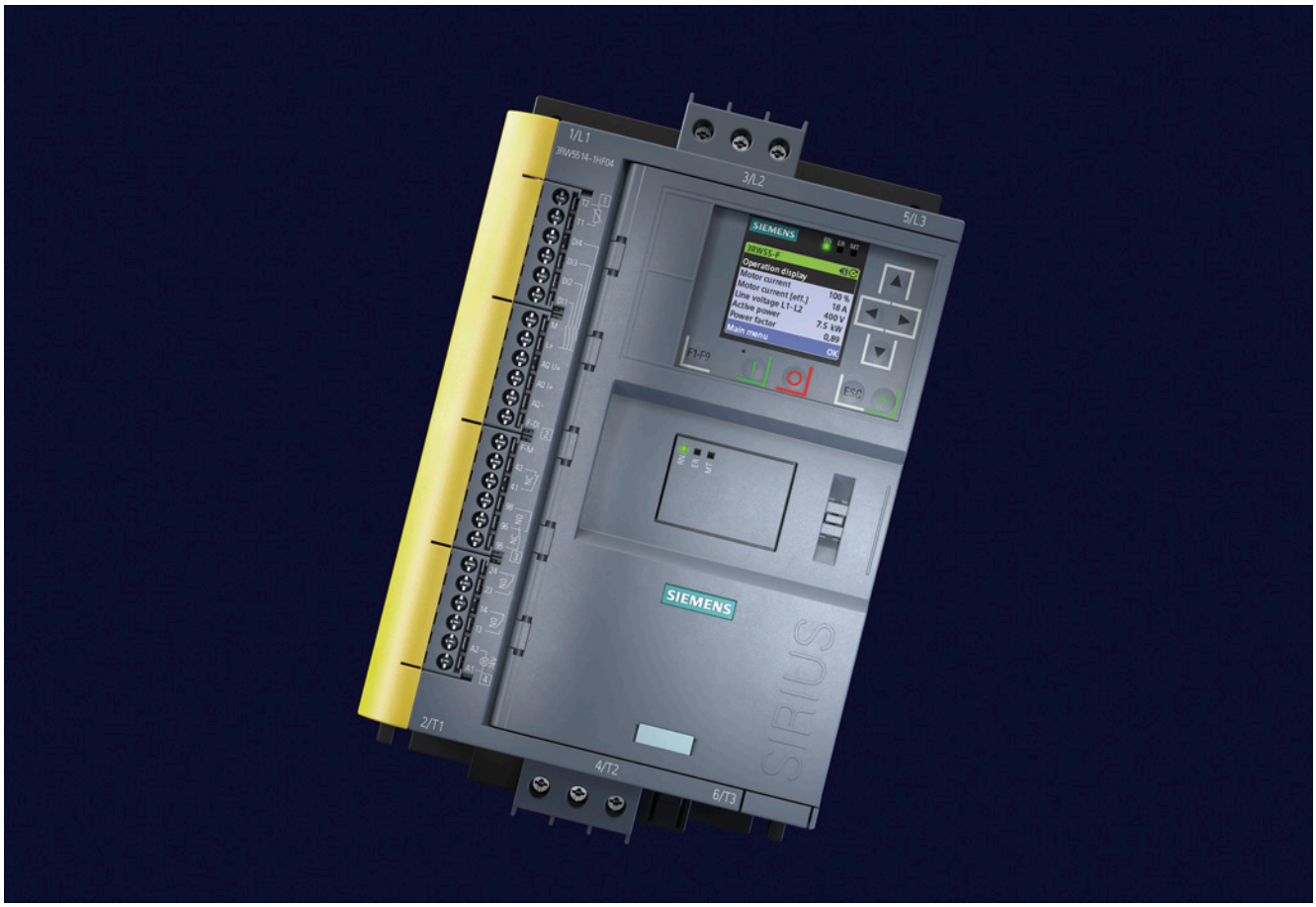
## Benefits




| Product characteristics/function | Performance features/benefits |
|---|---|
| Automatic parameterization | Extremely easy commissioning and reliability even under changing load conditions |
| Hybrid switching technology and 3-phase motor control | Minimum power loss and optimum/symmetrical motor control |
| TIA integration – communications modules optional | Efficient configuration and maximum flexibility in automation engineering |
| Removable HMI with color display, local interface, slot for micro SD memory card | Maximum flexibility with regard to user interface and intuitive menu guidance |
| Pump stop and torque control | Reduced mechanical loading and optimum pump stop control |
| Certified according to ATEX/IECEx directive | Suitable for the starting of explosion-proof motors |
| Fail-safe disconnection up to SIL 3/PL e/STO | Reduced costs and space requirements thanks to direct wiring of the EMERGENCY STOP mushroom pushbutton to the soft starter for SIL 1/PL c |
| System redundancy S2 | Simple and straight-forward integration into fault-tolerant automation systems |
| Direct integration into MindSphere via the OPC UA server | Worldwide data availability for optimal plant operation |

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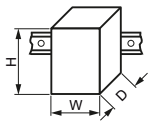
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25776/td | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25776/faq |
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109753752 | Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| Type | | 3RW551.-.HF.4 | 3RW552.-.HF.4<br>3RW553.-.HF.4 | 3RW554.-.HF.4 |
|---|---|---|---|---|
| **Installation/fixing/dimensions** | | | | |
| **Width x height x depth**   | mm | 170 x 275 x 152 | 185 x 306 x 203 | 210 x 393 x 203 |
| **Type of mounting** | | Screw fixing | | |
| **Mounting position** | | Vertical (can be rotated +/- 90° and tilted +/- 22.5° forward or backward) | | |
| **Distance to be maintained with side-by-side mounting** | | | | |
| • Above | mm | 100 | | |
| • At the side | mm | 5 | | |
| • Below | mm | 75 | | |
| **Installation altitude at height above sea level, maximum**[1] | m | 2 000 | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | IP00 (IP20 with cover) | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | Finger-safe for vertical touching from the front with cover | |
| **Ambient conditions** | | | | |
| **Ambient temperature** | | | | |
| • During operation[2] | °C | -25 ... +60 | | |
| • During storage and transport | °C | -40 ... +80 | | |
| **Environmental category according to IEC 60721** | | | | |
| • During operation | | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 | | |
| • During storage | | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4 | | |
| • During transport | | 2K2, 2C1, 2S1, 2M2 (max. height of fall 0.3 m) | | |

[1] Derating from 1 000 m, see characteristic curve on page 6/8.

[2] Note derating above 40 °C.

| Type | | 3RW55..-.HF04 | 3RW55..-.HF14 |
|---|---|---|---|
| **Control circuit/control** | | | |
| **Control supply voltage** | | | |
| • At AC/DC | V | 24/24 | --/-- |
| • At AC | V | -- | 110 ... 250 |
| **Relative negative tolerance/relative positive tolerance of the control supply voltage** | | | |
| • At AC | % | -20/20 | -15/10 |
| • At DC | % | -20/20 | --/-- |
| **Frequency of the control supply voltage** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Type of overvoltage protection** | | Varistors | |
| **Type of short-circuit protection for control circuit**[1] | | Fuse 4 A gG ($I_{cu}$ =1 kA), fuse 6 A quick-response ($I_{cu}$ =1 kA), MCB C1 ($I_{cu}$ = 600 A), MCB C6 ($I_{cu}$ = 300 A) | |

[1] Not included in scope of supply.

| Type | | 3RW55..-.HF.4 |
|---|---|---|
| **Power electronics** | | |
| **Operational voltage** | V | 200 ... 480 |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 |
| **Operational voltage for inside-delta circuit** | V | 200 ... 480 |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 |
| **Operating frequency** | Hz | 50 ... 60 |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 |
| **Minimum load [% of $I_M$]**[1] | % | 10 |
| **Maximum cable length between soft starter and motor** | m | 800 |

[1] Relative to set $I_e$.

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| Type | | 3RW5513 | 3RW5514 | 3RW5515 | 3RW5516 | 3RW5517 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 13 | 18 | 25 | 32 | 38 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 25/22.3/19.6 | 38/33.5/30.5 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (CLASS 10A)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 |
| - Start-up time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| **Normal starting (CLASS 10E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 13 | 13 | 13 | 13 | 13 |
| - Start-up time 20 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| **Heavy starting (CLASS 20E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 29.6/27.2/23.6 | 33.5/30.5/27.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (CLASS 30E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 26/23.6/21.2 | 29/26/23 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| - Start-up time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 2.5/13 | 3.5/18 | 5/25 | 6.5/32 | 7.5/38 |
| • Minimum/maximum in inside-delta circuits | A | 4.3/22.5 | 6.1/31.1 | 8.7/43.3 | 11.3/55.4 | 13/65.8 |

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| Type | | 3RW5524 | 3RW5525 | 3RW5526 | 3RW5527 |
|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 47 | 63 | 77 | 93 |
| **Power electronics** | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| ***Permissible rated motor current and starts/h*** | | | | | |
| **Normal starting (CLASS 10A)** | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 | 43 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 28 | 28 |
| - Start-up time 10 s | 1/h | 10 | 10 | 10 | 10 |
| **Normal starting (CLASS 10E)** | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | |
| - Start-up time 10 s | 1/h | 13 | 13 | 13 | 13 |
| - Start-up time 20 s | 1/h | 4 | 4 | 4 | 4 |
| **Heavy starting (CLASS 20E)** | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 0 | 0 | 0 |
| **Heavy starting (CLASS 30E)** | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 43.4/38/34.4 | 53/48/43 | 68/62/56 | 82.5/75.5/65 |
| • 300% $I_M$ | | | | | |
| - Start-up time 30 s | 1/h | 7 | 7 | 7 | 7 |
| - Start-up time 60 s | 1/h | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | |
| - Start-up time 30 s | 1/h | 4 | 4 | 4 | 4 |
| - Start-up time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | |
| • Minimum/maximum | A | 10/47 | 13/63 | 16/77 | 19/93 |
| • Minimum/maximum in inside-delta circuits | A | 17.3/81.4 | 22.5/109 | 27.7/133 | 32.9/161 |

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| Type | | 3RW5534 | 3RW5535 | 3RW5536 |
|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 113 | 143 | 171 |
| **Power electronics** | | | | |
| **Load rating with rated operational current $I_e$** | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 113/101/89 | 143/128/118 | 171/153/141 |
| ***Permissible rated motor current and starts/h*** | | | | |
| **Normal starting (CLASS 10A)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 35 |
| - Start-up time 10 s | 1/h | 18 | 18 | 13 |
| • 350% $I_M$ | | | | |
| - Start-up time 5 s | 1/h | 28 | 17 | 10 |
| - Start-up time 10 s | 1/h | 10 | 4 | 0 |
| **Normal starting (CLASS 10E)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 14 |
| - Start-up time 20 s | 1/h | 8 | 7 | 4 |
| • 350% $I_M$ | | | | |
| - Start-up time 10 s | 1/h | 13 | 4 | 0 |
| - Start-up time 20 s | 1/h | 4 | 0 | 0 |
| **Heavy starting (CLASS 20E)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 109/97/85 | 128/113/103 | 141/129/117 |
| • 300% $I_M$ | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 |
| • 350% $I_M$ | | | | |
| - Start-up time 20 s | 1/h | 7 | 6 | 6 |
| - Start-up time 40 s | 1/h | 0 | 0 | 0 |
| **Heavy starting (CLASS 30E)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 89/81/74 | 108/98/88 | 117/105/93 |
| • 300% $I_M$ | | | | |
| - Start-up time 30 s | 1/h | 7 | 7 | 7 |
| - Start-up time 60 s | 1/h | 3 | 3 | 3 |
| • 350% $I_M$ | | | | |
| - Start-up time 30 s | 1/h | 4 | 4 | 4 |
| - Start-up time 60 s | 1/h | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | |
| • Minimum/maximum | A | 23/113 | 29/143 | 34/171 |
| • Minimum/maximum in inside-delta circuits | A | 39.8/195 | 50.2/247 | 58.9/296 |

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| Type | | 3RW5543 | 3RW5544 | 3RW5545 | 3RW5546 | 3RW5547 | 3RW5548 |
|---|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 210 | 250 | 315 | 370 | 470 | 570 |
| **Power electronics** | | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| ***Permissible rated motor current and starts/h*** | | | | | | | |
| **Normal starting (CLASS 10A)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 38 | 43 | 32 | 13 |
| - Start-up time 10 s | 1/h | 13 | 18 | 14 | 18 | 13 | 3 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 5 s | 1/h | 14 | 28 | 19 | 28 | 19 | 4 |
| - Start-up time 10 s | 1/h | 0 | 10 | 5 | 10 | 6 | 0.4 |
| **Normal starting (CLASS 10E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 551/490/445 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 10 s | 1/h | 13 | 21 | 14 | 20 | 13 | 5 |
| - Start-up time 20 s | 1/h | 2 | 8 | 4 | 8 | 3 | -- |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 10 s | 1/h | 0 | 13 | 5 | 12 | 6 | 1 |
| - Start-up time 20 s | 1/h | 0 | 4 | 0 | 3 | 0.4 | -- |
| **Heavy starting (CLASS 20E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 162/146/130 | 200/180/160 | 231/207/183 | 258/230/202 | 272/254/236 | 284/262/240 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Heavy starting (CLASS 30E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 138/122/106 | 160/140/120 | 183/159/135 | 202/174/160 | 210/190/170 | 220/200/180 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 30 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 60 s | 1/h | 3 | 3 | 3 | 3 | 3 | 3 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 30 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| - Start-up time 60 s | 1/h | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| **Adjustable rated motor current $I_M$** | | | | | | | |
| • Minimum/maximum | A | 42/210 | 50/250 | 63/315 | 74/370 | 94/470 | 114/570 |
| • Minimum/maximum in inside-delta circuits | A | 72.7/363 | 86.6/433 | 109.1/545 | 128.2/640 | 162.8/814 | 197.5/987 |

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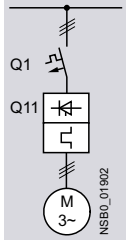
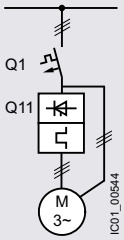
***Motor feeders according to IEC with 3RV2 motor starter protectors/3VA circuit breakers (without semiconductor protection)***

Type of coordination "1", CLASS 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | Motor starter protectors/circuit breakers | | | | Motor starter protectors/circuit breakers | | | |
|---|---|---|---|---|---|---|---|---|
| | for 400 V systems | | for 480 V systems | | for 400 V systems | | for 480 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | |
| **3RW5513** | 3RV2032-4TA10 | 65 | 3RV2032-4TA10 | 18 | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 18 |
| **3RW5514** | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 15 | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 |
| **3RW5515** | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 15 |
| **3RW5516** | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 10 | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 |
| **3RW5517** | 3RV2032-4WA10 | 65 | 3RV2032-4WA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5524** | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5525** | 3VA2163-7MN32-0AA0 | 65 | 3VA2163-7MN32-0AA0 | 20 | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 |
| **3RW5526** | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 | 3VA2216-7MN32-0AA0 | 65 | 3VA2216-7MN32-0AA0 | 20 |
| **3RW5527** | 3VA2216-7MN32-0AA0 | 15 | 3VA2216-7MN32-0AA0 | 10 | 3VA2220-7MN32-0AA0 | 15 | 3VA2220-7MN32-0AA0 | 10 |
| **3RW5534** | 3VA2216-7MN32-0AA0 | 65 | -- | -- | 3VA2220-7MN32-0AA0 | 65 | -- | -- |
| **3RW5535** | 3VA2220-7MN32-0AA0 | 65 | -- | -- | 3VA2325-7MN32-0AA0 | 65 | -- | -- |
| **3RW5536** | 3VA2325-7MN32-0AA0 | 30 | 3VA2325-7MN32-0AA0 | 10 | 3VA2440-7MN32-0AA0 | 30 | 3VA2440-7MN32-0AA0 | 10 |
| **3RW5543** | 3VA2325-7MN32-0AA0 | 65 | 3VA2325-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5544** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 |
| **3RW5545** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5546** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5547** | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |
| **3RW5548** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |

Note:

The service factor and measurement inaccuracies, for example, have been taken into account for the selection of the specified motor starter protectors/circuit breakers; the specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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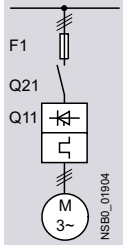
***Motor feeders according to IEC with 3NA3 fuses***

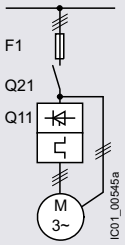
gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

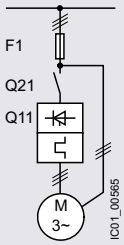
Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** for systems up to 480 V | **Line contactor (optional)** for systems up to 480 V | **gG class fuse** for systems up to 480 V | **Line contactor (optional)** for systems up to 480 V in the supply cable | for systems up to 480 V in the delta |
|---|---|---|---|---|---|
| Q11 | F1 | Q21 | F1 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | **Inside-delta circuit** | | |
| **3RW5513** | 3NA3820-6 | 3RT2025 | 3NA3820-6 | 3RT2027 | 3RT2025 |
| **3RW5514** | 3NA3820-6 | 3RT2026 | 3NA3820-6 | 3RT2027 | 3RT2026 |
| **3RW5515** | 3NA3822-6 | 3RT2027 | 3NA3822-6 | 3RT2036 | 3RT2027 |
| **3RW5516** | 3NA3824-6 | 3RT2035 | 3NA3824-6 | 3RT2037 | 3RT2035 |
| **3RW5517** | 3NA3824-6 | 3RT2035 | 3NA3824-6 | 3RT2038 | 3RT2035 |
| **3RW5524** | 3NA3824-6 | 3RT2036 | 3NA3824-6 | 3RT2046 | 3RT2036 |
| **3RW5525** | 3NA3830-6 | 3RT2037 | 3NA3830-6 | 3RT2047 | 3RT2037 |
| **3RW5526** | 3NA3132-6 | 3RT2038 | 3NA3132-6 | 3RT1055 | 3RT2038 |
| **3RW5527** | 3NA3136-6 | 3RT2046 | 3NA3136-6 | 3RT1056 | 3RT2046 |
| **3RW5534** | 3NA3244-6 | 3RT1054 | 3NA3244-6 | 3RT1064 | 3RT1054 |
| **3RW5535** | 3NA3244-6 | 3RT1055 | 3NA3244-6 | 3RT1065 | 3RT1055 |
| **3RW5536** | 3NA3365-6 | 3RT1056 | 3NA3365-6 | 3RT1066 | 3RT1056 |
| **3RW5543** | 2 x 3NA3354-6 | 3RT1064 | 2 x 3NA3354-6 | 3RT1075 | 3RT1064 |
| **3RW5544** | 2 x 3NA3354-6 | 3RT1065 | 2 x 3NA3354-6 | 3RT1076 | 3RT1065 |
| **3RW5545** | 2 x 3NA3365-6 | 3RT1075 | 2 x 3NA3365-6 | 3TF68 | 3RT1075 |
| **3RW5546** | 2 x 3NA3365-6 | 3RT1075 | 2 x 3NA3365-6 | 3TF69 | 3RT1075 |
| **3RW5547** | 2 x 3NA3365-6 | 3RT1076 | 2 x 3NA3365-6 | 3TF69 | 3RT1076 |
| **3RW5548** | 2 x 3NA3365-6 | 3TF68 | 2 x 3NA3365-6 | -- | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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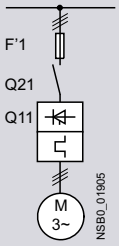
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gR/gS class fuse | Line contactor (optional) |
|---|---|---|
| | for systems up to 480 V | for systems up to 480 V |
| Q11 | F'1 | Q21 |
| Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | |
| **3RW5513** | 3NE1815-0 | 3RT2025 |
| **3RW5514** | 3NE1802-0 | 3RT2026 |
| **3RW5515** | 3NE1817-0 | 3RT2027 |
| **3RW5516** | 3NE1818-0 | 3RT2035 |
| **3RW5517** | 3NE1820-0 | 3RT2035 |
| **3RW5524** | 3NE1021-2 | 3RT2036 |
| **3RW5525** | 3NE1022-0 | 3RT2037 |
| **3RW5526** | 3NE1224-0 | 3RT2038 |
| **3RW5527** | 3NE1224-0 | 3RT2046 |
| **3RW5534** | 3NE1225-0 | 3RT1054 |
| **3RW5535** | 3NE1227-0 | 3RT1055 |
| **3RW5536** | 3NE1230-0 | 3RT1056 |
| **3RW5543** | 3NE1230-2 | 3RT1064 |
| **3RW5544** | 3NE1331-0 | 3RT1065 |
| **3RW5545** | 3NE1334-2 | 3RT1075 |
| **3RW5546** | 3NE1334-2 | 3RT1075 |
| **3RW5547** | 3NE1436-2 | 3RT1076 |
| **3RW5548** | 3NE1437-2 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

In inside-delta circuits, a gR/gS class full-range fuse could not provide the semiconductor protection of the delta-connected soft starter with a short-circuit breaking capacity that is adequate for practical use. In this case, we recommend using aR class partial-range fuses for semiconductor protection for type of coordination "2" (see page 6/49).

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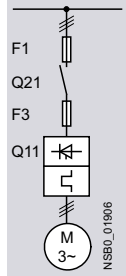
***Motor feeders according to IEC with 3NE8/3NE3/3NC3 fuses***

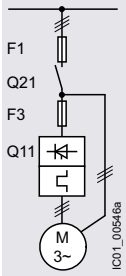
aR class partial-range fuses for semiconductor protection

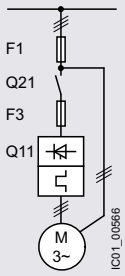
Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** for systems up to 480 V | **aR class fuse** for systems up to 480 V | **Line contactor (optional)** for systems up to 480 V | **gG class fuse** for systems up to 480 V | **aR class fuse** for systems up to 480 V | **Line contactor (optional)** for systems up to 480 V in the supply cable | for systems up to 480 V in the delta |
|---|---|---|---|---|---|---|---|
| Q11 | F1 | F3 | Q21 | F1 | F3 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | **Inside-delta circuit** | | | |
| **3RW5513** | 3NA3820-6 | 3NE8017-1 | 3RT2025 | 3NA3820-6 | 3NE8017-1 | 3RT2027 | 3RT2025 |
| **3RW5514** | 3NA3820-6 | 3NE8020-1 | 3RT2026 | 3NA3820-6 | 3NE8020-1 | 3RT2027 | 3RT2026 |
| **3RW5515** | 3NA3822-6 | 3NE8021-1 | 3RT2027 | 3NA3822-6 | 3NE8021-1 | 3RT2036 | 3RT2027 |
| **3RW5516** | 3NA3824-6 | 3NE8022-1 | 3RT2035 | 3NA3824-6 | 3NE8022-1 | 3RT2037 | 3RT2035 |
| **3RW5517** | 3NA3824-6 | 3NE8024-1 | 3RT2035 | 3NA3824-6 | 3NE8024-1 | 3RT2038 | 3RT2035 |
| **3RW5524** | 3NA3824-6 | 3NE8024-1 | 3RT2036 | 3NA3824-6 | 3NE8024-1 | 3RT2046 | 3RT2036 |
| **3RW5525** | 3NA3830-6 | 3NE3227 | 3RT2037 | 3NA3830-6 | 3NE3227 | 3RT2047 | 3RT2037 |
| **3RW5526** | 3NA3132-6 | 3NE3227 | 3RT2038 | 3NA3132-6 | 3NE3227 | 3RT1055 | 3RT2038 |
| **3RW5527** | 3NA3136-6 | 3NE3227 | 3RT2046 | 3NA3136-6 | 3NE3227 | 3RT1056 | 3RT2046 |
| **3RW5534** | 3NA3244-6 | 3NE3231 | 3RT1054 | 3NA3244-6 | 3NE3231 | 3RT1064 | 3RT1054 |
| **3RW5535** | 3NA3244-6 | 3NE3233 | 3RT1055 | 3NA3244-6 | 3NE3233 | 3RT1065 | 3RT1055 |
| **3RW5536** | 3NA3365-6 | 3NE3334-0B | 3RT1056 | 3NA3365-6 | 3NE3334-0B | 3RT1066 | 3RT1056 |
| **3RW5543** | 2 x 3NA3354-6 | 3NE3333 | 3RT1064 | 2 x 3NA3354-6 | 3NE3333 | 3RT1075 | 3RT1064 |
| **3RW5544** | 2 x 3NA3354-6 | 3NE3335 | 3RT1065 | 2 x 3NA3354-6 | 3NE3335 | 3RT1076 | 3RT1065 |
| **3RW5545** | 2 x 3NA3365-6 | -- | 3RT1075 | 2 x 3NA3365-6 | -- | 3TF68 | 3RT1075 |
| **3RW5546** | 2 x 3NA3365-6 | -- | 3RT1075 | 2 x 3NA3365-6 | -- | 3TF69 | 3RT1075 |
| **3RW5547** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1076 | 2 x 3NA3365-6 | 3NE3340-8 | 3TF69 | 3RT1076 |
| **3RW5548** | 2 x 3NA3365-6 | 3NC3342-1U | 3TF68 | 2 x 3NA3365-6 | 3NC3342-1U | -- | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For CLASS 10 applications, as an alternative to the gG class full-range fuses for cable and line protection 3NA3 (F1), 3RV2 motor starter protectors/3VA circuit breakers can also be used, possibly with reduced short-circuit breaking capacity (see page 6/46). In these cases, optional line contactors can be dispensed with.

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### *Reversing operation with reversing contactors*

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.

(Example circuit, see 3RW55 Equipment Manual, Appendix A.3)

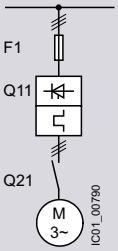
| Soft starters | Reversing contactor assembly | Reversing contactor |
|---|---|---|
| | for systems up to 480 V | for systems up to 480 V |
| Q11 | Q21/Q22 | Q21/Q22 |
| Type | Type | Type |
| **3RW5513** | 3RA2325 | 3RT2025 |
| **3RW5514** | 3RA2326 | 3RT2026 |
| **3RW5515** | 3RA2327 | 3RT2027 |
| **3RW5516** | 3RA2335 | 3RT2035 |
| **3RW5517** | 3RA2335 | 3RT2035 |
| **3RW5524** | 3RA2336 | 3RT2036 |
| **3RW5525** | 3RA2337 | 3RT2037 |
| **3RW5526** | 3RA2338 | 3RT2038 |
| **3RW5527** | 3RA2346 | 3RT2046 |
| **3RW5534** | -- | 3RT1054 |
| **3RW5535** | -- | 3RT1055 |
| **3RW5536** | -- | 3RT1056 |
| **3RW5543** | -- | 3RT1064 |
| **3RW5544** | -- | 3RT1065 |
| **3RW5545** | -- | 3RT1075 |
| **3RW5546** | -- | 3RT1075 |
| **3RW5547** | -- | 3RT1076 |
| **3RW5548** | -- | 3TF68 |

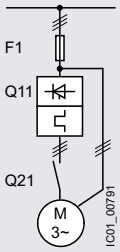
### *Redundant contactors for applications > SIL 1*

A redundant contactor is necessary for applications with a Safety Integrity Level > SIL 1 or a Performance Level > PL c in conjunction with the 3RW55 Failsafe soft starter.

Note:

For more details about safe switching according to IEC 62061 (SIL) or ISO 13849-1 (PL) see FAQ article.




| Soft starters | Standard (inline) circuit | | Inside-delta circuit | |
|---|---|---|---|---|
| | for systems up to 480 V | | for systems up to 480 V | |
| | according to IEC 62061 | according to ISO 13849-1 | according to IEC 62061 | according to ISO 13849-1 |
| Q11 | Q21 | | Q21 | |
| Type | Type | Type | Type | Type |
| **3RW5513** | 3RT2027 | 3RT2027 | 3RT2027 | 3RT2027 |
| **3RW5514** | 3RT2027 | 3RT2035 | 3RT2027 | 3RT2035 |
| **3RW5515** | 3RT2035 | 3RT2036 | 3RT2035 | 3RT2036 |
| **3RW5516** | 3RT2036 | 3RT2037 | 3RT2036 | 3RT2037 |
| **3RW5517** | 3RT2037 | 3RT2038 | 3RT2037 | 3RT2038 |
| **3RW5524** | 3RT2038 | 3RT2046 | 3RT2038 | 3RT2046 |
| **3RW5525** | 3RT2046 | 3RT1055 | 3RT2046 | 3RT1055 |
| **3RW5526** | 3RT1055 | 3RT1056 | 3RT1055 | 3RT1056 |
| **3RW5527** | 3RT1055 | 3RT1064 | 3RT1055 | 3RT1064 |
| **3RW5534** | 3RT1056 | 3RT1065 | 3RT1056 | 3RT1065 |
| **3RW5535** | 3RT1064 | 3RT1066 | 3RT1064 | 3RT1066 |
| **3RW5536** | 3RT1065 | 3RT1075 | 3RT1065 | 3RT1075 |
| **3RW5543** | 3RT1075 | 3RT1076 | 3RT1075 | 3RT1076 |
| **3RW5544** | 3RT1075 | 3RT1076 | 3RT1075 | 3RT1076 |
| **3RW5545** | 3RT1076 | 3TF68 | 3RT1076 | 3TF68 |
| **3RW5546** | 3TF68 | 3TF69 | 3TF68 | 3TF69 |
| **3RW5547** | 3TF69 | -- | 3TF69 | -- |
| **3RW5548** | -- | -- | -- | -- |

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## Selection and ordering data

***For normal starting (CLASS 10E)***

3RW551.

3RW552.

3RW553.

3RW554.

| At 40 °C | | | At 50 °C | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | | | | | |
| A | kW | kW | A | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | |
| 13 | 3 | **5.5** | 11.5 | 2 | 3 | **7.5** | **3RW5513-□HF□4** | | 1 | 1 unit | 42S |
| 18 | 4 | **7.5** | 15.9 | 3 | 5 | **10** | **3RW5514-□HF□4** | | 1 | 1 unit | 42S |
| 25 | 5.5 | **11** | 22.3 | 5 | 7.5 | **15** | **3RW5515-□HF□4** | | 1 | 1 unit | 42S |
| 32 | 7.5 | **15** | 28.4 | 7.5 | 10 | **20** | **3RW5516-□HF□4** | | 1 | 1 unit | 42S |
| 38 | 11 | **18.5** | 33.5 | 10 | 10 | **20** | **3RW5517-□HF□4** | | 1 | 1 unit | 42S |
| 47 | 11 | **22** | 41.6 | 10 | 10 | **30** | **3RW5524-□HF□4** | | 1 | 1 unit | 42S |
| 63 | 18.5 | **30** | 55.5 | 15 | 20 | **40** | **3RW5525-□HF□4** | | 1 | 1 unit | 42S |
| 77 | 22 | **37** | 68 | 20 | 25 | **50** | **3RW5526-□HF□4** | | 1 | 1 unit | 42S |
| 93 | 22 | **45** | 82.5 | 25 | 30 | **60** | **3RW5527-□HF□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Screw terminals
Spring-loaded terminals

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**1 3**
**0 1**

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

| At 40 °C | | | At 50 °C | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | | | | | |
| A | kW | kW | A | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | |
| 113 | 30 | **55** | 101 | 30 | 30 | **75** | **3RW5534-□HF□4** | | 1 | 1 unit | 42S |
| 143 | 37 | **75** | 128 | 40 | 40 | **100** | **3RW5535-□HF□4** | | 1 | 1 unit | 42S |
| 171 | 45 | **90** | 153 | 50 | 50 | **100** | **3RW5536-□HF□4** | | 1 | 1 unit | 42S |
| 210 | 55 | **110** | 186 | 60 | 60 | **150** | **3RW5543-□HF□4** | | 1 | 1 unit | 42S |
| 250 | 75 | **132** | 220 | 60 | 75 | **150** | **3RW5544-□HF□4** | | 1 | 1 unit | 42S |
| 315 | 90 | **160** | 279 | 75 | 100 | **200** | **3RW5545-□HF□4** | | 1 | 1 unit | 42S |
| 370 | 110 | **200** | 328 | 100 | 125 | **250** | **3RW5546-□HF□4** | | 1 | 1 unit | 42S |
| 470 | 132 | **250** | 416 | 150 | 150 | **350** | **3RW5547-□HF□4** | | 1 | 1 unit | 42S |
| 570 | 160 | **315** | 504 | 150 | 200 | **400** | **3RW5548-□HF□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**2 6**
**0 1**

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

***For normal starting (CLASS 10E)***

3RW551.

3RW552.

3RW553.

3RW554.

| At 40 °C for inside-delta circuit | | | At 50 °C for inside-delta circuit | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | | | | | |
| A | kW | kW | A | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 19.9 | 5 | 5 | **10** | **3RW5513-☐HF☐4** | | 1 | 1 unit | 42S |
| 31.5 | 7.5 | **15** | 28 | 7.5 | 7.5 | **20** | **3RW5514-☐HF☐4** | | 1 | 1 unit | 42S |
| 43.3 | 11 | **18.5** | 39 | 10 | 10 | **25** | **3RW5515-☐HF☐4** | | 1 | 1 unit | 42S |
| 55.4 | 15 | **22** | 49 | 15 | 15 | **30** | **3RW5516-☐HF☐4** | | 1 | 1 unit | 42S |
| 65.8 | 18.5 | **30** | 58 | 15 | 20 | **40** | **3RW5517-☐HF☐4** | | 1 | 1 unit | 42S |
| 81.4 | 22 | **45** | 72 | 20 | 25 | **50** | **3RW5524-☐HF☐4** | | 1 | 1 unit | 42S |
| 109 | 30 | **55** | 96 | 30 | 30 | **75** | **3RW5525-☐HF☐4** | | 1 | 1 unit | 42S |
| 133 | 37 | **75** | 118 | 30 | 40 | **75** | **3RW5526-☐HF☐4** | | 1 | 1 unit | 42S |
| 161 | 45 | **90** | 143 | 40 | 50 | **100** | **3RW5527-☐HF☐4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit** — 1 3
Screw terminals
Spring-loaded terminals

**Control supply voltage** — 0 1
24 V AC/DC
110 ... 250 V AC

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

| At 40 °C for inside-delta circuit | | | At 50 °C for inside-delta circuit | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | | | | | |
| A | kW | kW | A | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | |
| 196 | 55 | **110** | 175 | 50 | 60 | **125** | **3RW5534-☐HF☐4** | | 1 | 1 unit | 42S |
| 248 | 75 | **132** | 222 | 75 | 75 | **150** | **3RW5535-☐HF☐4** | | 1 | 1 unit | 42S |
| 296 | 90 | **160** | 265 | 75 | 100 | **200** | **3RW5536-☐HF☐4** | | 1 | 1 unit | 42S |
| 364 | 110 | **200** | 322 | 100 | 125 | **250** | **3RW5543-☐HF☐4** | | 1 | 1 unit | 42S |
| 433 | 132 | **250** | 381 | 125 | 150 | **300** | **3RW5544-☐HF☐4** | | 1 | 1 unit | 42S |
| 546 | 160 | **315** | 483 | 150 | 200 | **400** | **3RW5545-☐HF☐4** | | 1 | 1 unit | 42S |
| 641 | 200 | **355** | 568 | 200 | 200 | **450** | **3RW5546-☐HF☐4** | | 1 | 1 unit | 42S |
| 814 | 250 | **400** | 721 | 250 | 250 | **600** | **3RW5547-☐HF☐4** | | 1 | 1 unit | 42S |
| 987 | 315 | **560** | 873 | 300 | 350 | **750** | **3RW5548-☐HF☐4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit** — 2 6
Spring-loaded terminals
Screw terminals

**Control supply voltage** — 0 1
24 V AC/DC
110 ... 250 V AC

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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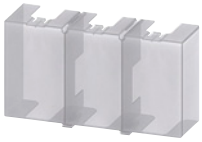
## Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Fan covers** | | | | | | | | | |
| 3RW5983-0FC00 | **Fan cover** | 3RW551 (1x), 3RW552 (2x), 3RW553 (2x) | -- | -- | **3RW5983-0FC00** | | 1 | 1 unit | 42S |
| | | 3RW554 (1x) | -- | -- | **3RW5984-0FC00** | | 1 | 1 unit | 42S |
| **Terminal covers** | | | | | | | | | |
|  3RW5983-0TC20 | **Terminal cover** | 3RW552 (2x), 3RW553 (2x) | -- | -- | **3RW5983-0TC20** | | 1 | 1 unit | 42S |
| 3RW5984-0TC20 | | 3RW554 (2x) | -- | -- | **3RW5984-0TC20** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | | |
| 3RW5950-0GL20 | **Hinged cover** | 3RW55 | Without cutout | -- | **3RW5950-0GL20** | | 1 | 1 unit | 42S |
| **Communications modules** | | | | | | | | | |
| 3RW5980-0CS00 | **Communications module**[1] | 3RW55 | PROFINET High-Feature with integral switch | -- | **3RW5950-0CH00** | | 1 | 1 unit | 42S |
| | | | PROFINET Standard | -- | **3RW5980-0CS00** | | 1 | 1 unit | 42S |
| | | | PROFIBUS | -- | **3RW5980-0CP00** | | 1 | 1 unit | 42S |
| 3RW5980-0CE00 | | | EtherNet/IP | -- | **3RW5980-0CE00** | | 1 | 1 unit | 42S |
| 3RW5980-0CR00 | | | Modbus RTU | -- | **3RW5980-0CR00** | | 1 | 1 unit | 42S |
| | | | Modbus TCP | -- | **3RW5980-0CT00** | | 1 | 1 unit | 42S |

[1] Use the recommended connection plugs for attaching the bus connecting cable (e.g. angled or suitable for industrial use), see Equipment Manual for the relevant communications module.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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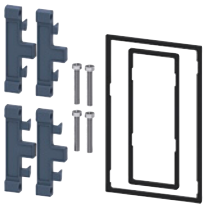
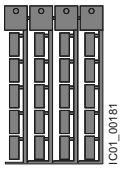
| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | | |
|  3RW5980-0HD00 | **IP65 door mounting kit for HMI modules** | 3RW55 | IP65 | For HMI modules | **3RW5980-0HD00** | | 1 | 1 unit | 42S |
| **Connecting cables** | | | | | | | | | |
| 3UF793.-0BA00-0 | **HMI connecting cable** | 3RW55 | 5 m, round | For door mounting | **3RW5980-0HC60** | | 1 | 1 unit | 42S |
| | | | 2.5 m, round | | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 1.0 m, round | | **3UF7937-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 0.5 m, round | | **3UF7932-0BA00-0** | | 1 | 1 unit | 42J |
| **Further accessories** | | | | | | | | | |
| 3ZY1311-0AA00 | **Push-in lugs for wall mounting** | -- | Two lugs are required per device | For HMI modules and communications modules | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| **Blank labels** | | | | | | | | | |
|   3RT2900-1SB20 | **Unit labeling plates[1)]** | -- | 20 mm x 7 mm, titanium gray | For SIRIUS devices | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1)] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

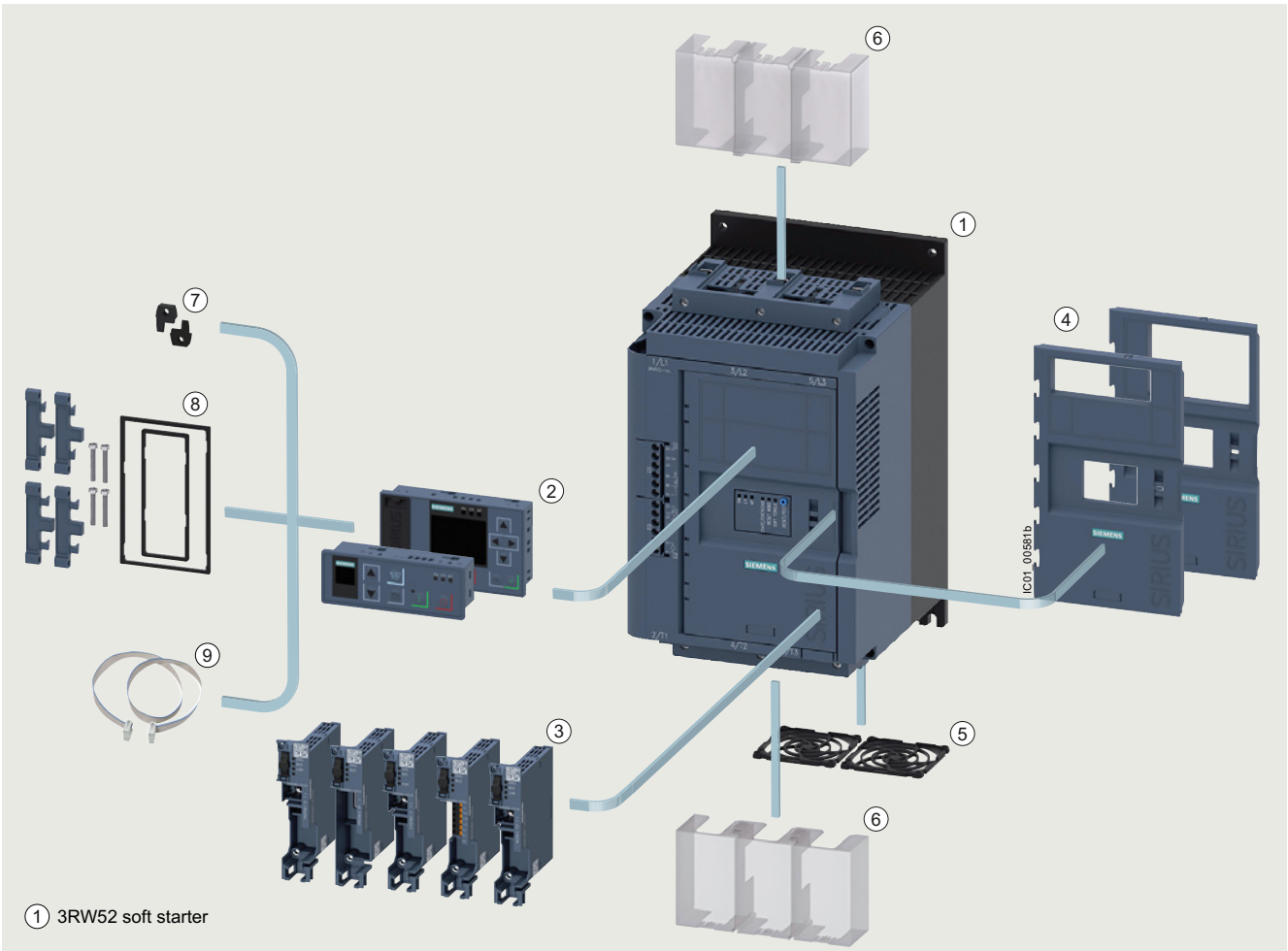
| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | SIRIUS Soft Starter ES (TIA Portal) for diagnostics, see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| Industry Mall, see www.siemens.com/product?3RW52 | SIRIUS 3RW soft starter block library for SIMATIC PCS 7, see page 6/10 or https://support.industry.siemens.com/cs/ww/en/view/109770336 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw52 | Decision-making support for motor starting – Starting and running three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide |
| Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | Conversion tool, see www.siemens.com/conversion-tool |
| Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 | |

SIRIUS 3RW52 soft starters device family

SIRIUS 3RW52 General Performance soft starters are the ideal solution for standard applications. With ideal 3-phase motor control, they cover the performance range from 5.5 to 560 kW (at 400 V).

Optional HMI modules, plug-in communications modules (PROFINET, PROFIBUS, EtherNet/IP and Modbus) and either an analog output or thermistor motor protection ensure maximum flexibility.

With their modern hybrid switching technology, the SIRIUS 3RW52 soft starters offer efficient switching for long-term, energy-saving use.




1 3RW52 soft starter

2 HMI modules
3 Communications modules
4 Hinged cover
5 Fan covers
6 Terminal covers (size 2 to size 4)
7 Push-in lugs for wall mounting
8 IP65 door mounting kit
9 HMI soft starter connecting cable

SIRIUS 3RW52 General Performance soft starter with accessories (see page 6/71), for expansion with HMI module or communications module

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## Benefits

| Product characteristics/function | Performance features/benefits |
|---|---|
| Hybrid switching technology and 3-phase motor control | Minimum power loss and optimum/symmetrical motor control |
| TIA integration – communications modules and HMI modules optional | Efficient configuration and maximum flexibility in automation engineering |
| Soft Torque | Reduced mechanical loading and optimum pump stop |
| Parameterization using potentiometers | Simple and fast commissioning |
| Wide range for control supply and main voltage | Low variance, high system availability even with weak supply networks |

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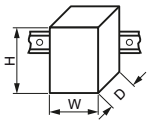
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25100/td<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109753751 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25100/faq<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| **Type** | | | **3RW5213<br>3RW5214<br>3RW5215** | **3RW5216<br>3RW5217** | **3RW5224<br>3RW5225** | **3RW5226<br>3RW5227<br>3RW5234<br>3RW5235<br>3RW5236** | **3RW5243<br>3RW5244<br>3RW5245<br>3RW5246<br>3RW5247<br>3RW5248** |
|---|---|---|---|---|---|---|---|
| **Installation/fixing/dimensions** | | | | | | | |
| **Width x height x depth** |  | mm | 170 x 275 x 152 | | 185 x 306 x 203 | | 210 x 393 x 203 |
| **Type of mounting** | | | Screw fixing | | | | |
| **Mounting position** | | | For vertical mounting surface can be rotated +/- 10° and tilted forward or backward | For vertical mounting surface can be rotated +/- 90°, for vertical mounting surface can be tilted +/- 22.5° forward or backward | For vertical mounting surface can be rotated +/- 10° and tilted forward or backward | For vertical mounting surface can be rotated +/- 90°, for vertical mounting surface can be tilted +/- 22.5° forward or backward | |
| **Distance to be maintained with side-by-side mounting** | | | | | | | |
| • Above | | mm | 100 | | | | |
| • At the side | | mm | 5 | | | | |
| • Below | | mm | 75 | | | | |
| **Installation altitude at height above sea level, maximum**[1] | | m | 5 000 | | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | | IP00 (IP20 with cover) | | |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | | Finger-safe for vertical touching from the front with cover | | |
| **Ambient conditions** | | | | | | | |
| **Ambient temperature** | | | | | | | |
| • During operation[2] | | °C | -25 ... +60 | | | | |
| • During storage and transport | | °C | -40 ... +80 | | | | |
| **Environmental category according to IEC 60721** | | | | | | | |
| • During operation | | | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 | | | | |
| • During storage | | | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4 | | | | |
| • During transport | | | 2K2, 2C1, 2S1, 2M2 (max. height of fall 0.3 m) | | | | |

1) Derating from 1 000 m, see characteristic curve on page 6/8.
2) Note derating above 40 °C.

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| Type | | 3RW52..-..C0. | 3RW52..-..C1. |
|---|---|---|---|
| **Control circuit/control** | | | |
| **Control supply voltage** | | | |
| • At AC/DC | V | 24/24 | --/-- |
| • At AC | V | -- | 110 ... 250 |
| • Relative negative tolerance/relative positive tolerance with AC | % | -20/20 | -15/10 |
| • Relative negative tolerance/relative positive tolerance with DC | % | -20/20 | --/-- |
| **Frequency of the control supply voltage** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Type of overvoltage protection** | | Varistors | |
| **Type of short-circuit protection for control circuit**[1] | | Fuse 4 A gG ($I_{cu}$ =1 kA), fuse 6 A quick-response ($I_{cu}$ =1 kA), MCB C1 ($I_{cu}$ = 600 A), MCB C6 ($I_{cu}$ = 300 A) | |

1) Not included in scope of supply.

| Type | | 3RW52..-..C.4 | 3RW52..-..C.5 |
|---|---|---|---|
| **Power electronics** | | | |
| **Operational voltage** | V | 200 ... 480 | 200 ... 600 |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | |
| **Operational voltage for inside-delta circuit** | V | 200 ... 480 | 200 ... 600 |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | |
| **Operating frequency** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Minimum load [% of $I_M$]**[1] | % | 15 | |
| **Maximum cable length between soft starter and motor** | m | 800 | |

1) Relative to the smallest adjustable $I_e$.

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| Type | | 3RW5213 | 3RW5214 | 3RW5215 | 3RW5216 | 3RW5217 |
|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 13 | 18 | 25 | 32 | 38 |
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| ***Permissible rated motor current and starts/h*** | | | | | | |
| **Normal starting (CLASS 10A)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 |
| - Start-up time 10 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| **Normal starting (CLASS 10E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 32/28.4/26 | 38/33.5/30.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 10 s | 1/h | 13 | 13 | 13 | 13 | 13 |
| - Start-up time 20 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| **Heavy starting (CLASS 20E)** | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 13/11.5/10.5 | 18/15.9/13.8 | 25/22.3/19.6 | 29.6/27.2/23.6 | 33.5/30.5/27.5 |
| • 300% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | | | |
| • Minimum/maximum | A | 5.5/13 | 7.5/18 | 11.5/25 | 14/32 | 15.5/38 |
| • Minimum/maximum in inside-delta circuits | A | 9.5/22.5 | 13/31.2 | 19.9/43.3 | 24.2/55.4 | 26.8/65.8 |

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| Type | | 3RW5224 | 3RW5225 | 3RW5226 | 3RW5227 |
|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 47 | 63 | 77 | 93 |
| **Power electronics** | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| ***Permissible rated motor current and starts/h*** | | | | | |
| **Normal starting (CLASS 10A)** | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 | 43 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 | 18 |
| • 350% $I_M$ | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 28 | 28 |
| - Start-up time 10 s | 1/h | 10 | 10 | 10 | 10 |
| **Normal starting (CLASS 10E)** | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 77/68/62 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 | 8 |
| • 350% $I_M$ | | | | | |
| - Start-up time 10 s | 1/h | 13 | 13 | 13 | 13 |
| - Start-up time 20 s | 1/h | 4 | 4 | 4 | 4 |
| **Heavy starting (CLASS 20E)** | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 47/41.6/36.2 | 63/55.5/50.5 | 65/59/53 | 93/82.5/75.5 |
| • 300% $I_M$ | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 3 | 4 | 4 |
| • 350% $I_M$ | | | | | |
| - Start-up time 20 s | 1/h | 7 | 4 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2 | 0 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | | |
| • Minimum/maximum | A | 20/47 | 25.5/63 | 32/77 | 40.5/93 |
| • Minimum/maximum in inside-delta circuits | A | 34.6/81.4 | 44.2/109 | 55.4/133 | 70.1/161 |

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| Type | | 3RW5234 | 3RW5235 | 3RW5236 |
|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 113 | 143 | 171 |
| **Power electronics** | | | | |
| **Load rating with rated operational current $I_e$** | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 113/101/89 | 143/128/118 | 171/153/141 |
| ***Permissible rated motor current and starts/h*** | | | | |
| **Normal starting (CLASS 10A)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 113/101/89 | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 |
| • 350% $I_M$ | | | | |
| - Start-up time 5 s | 1/h | 28 | 27 | 20 |
| - Start-up time 10 s | 1/h | 10 | 8 | 4 |
| **Normal starting (CLASS 10E)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 113/101/89 | 139/127/116 | 158/146/129 |
| • 300% $I_M$ | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 |
| • 350% $I_M$ | | | | |
| - Start-up time 10 s | 1/h | 13 | 12 | 12 |
| - Start-up time 20 s | 1/h | 4 | 1 | 1 |
| **Heavy starting (CLASS 20E)** | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 109/97/85 | 113/103/93 | 129/117/105 |
| • 300% $I_M$ | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 |
| • 350% $I_M$ | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | |
| • Minimum/maximum | A | 53/113 | 68/143 | 81/171 |
| • Minimum/maximum in inside-delta circuits | A | 91.8/196 | 118/248 | 140/296 |

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| Type | | 3RW5243 | 3RW5244 | 3RW5245 | 3RW5246 | 3RW5247 | 3RW5248 |
|---|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 210 | 250 | 315 | 370 | 470 | 570 |
| **Power electronics** | | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| ***Permissible rated motor current and starts/h*** | | | | | | | |
| **Normal starting (CLASS 10A)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 | 43 | 30 | 20 |
| - Start-up time 10 s | 1/h | 18 | 18 | 14 | 18 | 11 | 6 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 16 | 28 | 17 | 9 |
| - Start-up time 10 s | 1/h | 5 | 10 | 4 | 10 | 5 | 1 |
| **Normal starting (CLASS 10E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 197/184/170 | 250/220/200 | 279/255/231 | 370/328/300 | 398/362/326 | 460/416/372 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 | 21 | 21 | 18 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 | 8 | 8 | 7 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 10 s | 1/h | 12 | 13 | 12 | 13 | 13 | 11 |
| - Start-up time 20 s | 1/h | 1 | 4 | 3 | 4 | 4 | 2 |
| **Heavy starting (CLASS 20E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C<br>ON period = 70%; motor protection activated | A | 162/146/130 | 200/180/160 | 195/171/147 | 258/230/202 | 272/236/218 | 284/262/240 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | | | | |
| • Minimum/maximum | A | 90/210 | 100/250 | 135/315 | 160/370 | 200/470 | 240/570 |
| • Minimum/maximum in inside-delta circuits | A | 156/364 | 173/433 | 234/546 | 277/641 | 346/814 | 416/987 |

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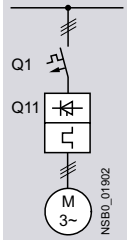
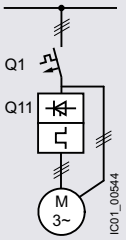
***Motor feeders according to IEC with 3RV2 motor starter protectors/3VA circuit breakers (without semiconductor protection)***

Type of coordination "1", CLASS 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders
with soft starters, see page 6/12.




| Soft starters | Motor starter protectors/circuit breakers | | | | Motor starter protectors/circuit breakers | | | |
|---|---|---|---|---|---|---|---|---|
| | for 400 V systems | | for 500 V systems | | for 400 V systems | | for 500 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | |
| **3RW5213** | 3RV2032-4TA10 | 65 | 3RV2032-4TA10 | 18 | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 18 |
| **3RW5214** | 3RV2032-4DA10 | 65 | 3RV2032-4DA10 | 15 | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 |
| **3RW5215** | 3RV2032-4EA10 | 65 | 3RV2032-4EA10 | 15 | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 15 |
| **3RW5216** | 3RV2032-4VA10 | 65 | 3RV2032-4VA10 | 10 | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 |
| **3RW5217** | 3RV2032-4WA10 | 65 | 3RV2032-4WA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5224** | 3RV2032-4JA10 | 65 | 3RV2032-4JA10 | 10 | 3RV2032-4RA10 | 65 | 3RV2032-4RA10 | 10 |
| **3RW5225** | 3VA2163-7MN32-0AA0 | 65 | 3VA2163-7MN32-0AA0 | 20 | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 |
| **3RW5226** | 3VA2110-7MN32-0AA0 | 65 | 3VA2110-7MN32-0AA0 | 20 | 3VA2216-7MN32-0AA0 | 65 | 3VA2216-7MN32-0AA0 | 20 |
| **3RW5227** | 3VA2216-7MN32-0AA0 | 15 | 3VA2216-7MN32-0AA0 | 10 | 3VA2220-7MN32-0AA0 | 15 | 3VA2220-7MN32-0AA0 | 10 |
| **3RW5234** | 3VA2216-7MN32-0AA0 | 65 | -- | -- | 3VA2220-7MN32-0AA0 | 65 | -- | -- |
| **3RW5235** | 3VA2220-7MN32-0AA0 | 65 | -- | -- | 3VA2325-7MN32-0AA0 | 65 | -- | -- |
| **3RW5236** | 3VA2325-7MN32-0AA0 | 30 | 3VA2325-7MN32-0AA0 | 10 | 3VA2440-7MN32-0AA0 | 30 | 3VA2440-7MN32-0AA0 | 10 |
| **3RW5243** | 3VA2325-7MN32-0AA0 | 65 | 3VA2325-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5244** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 |
| **3RW5245** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5246** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5247** | 3VA2450-7MN32-0AA0 | 65 | 3VA2450-7MN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |
| **3RW5248** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 | 3VA2510-6HN32-0AA0 | 65 |

Note:

The service factor and measurement inaccuracies, for example, have been taken into account for the selection of the specified motor starter protectors/circuit breakers; the specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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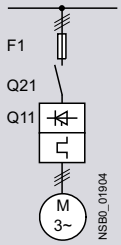
***Motor feeders according to IEC with 3NA3 fuses***

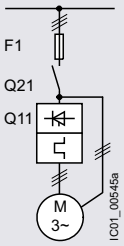
gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

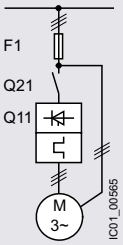
Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | Line contactor (optional) | | gG class fuse | Line contactor (optional) | | | |
|---|---|---|---|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V in the supply cable | for systems up to 600 V in the supply cable | for systems up to 480 V in the delta | for systems up to 600 V in the delta |
| Q11 | F1 | Q21 | Q21 | F1 | Q21 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | **Inside-delta circuit** | | | | |
| **3RW5213** | 3NA3820-6 | 3RT2025 | 3RT2025 | 3NA3820-6 | 3RT2027 | 3RT2035 | 3RT2025 | 3RT2025 |
| **3RW5214** | 3NA3820-6 | 3RT2026 | 3RT2027 | 3NA3820-6 | 3RT2027 | 3RT2037 | 3RT2026 | 3RT2027 |
| **3RW5215** | 3NA3822-6 | 3RT2027 | 3RT2037 | 3NA3822-6 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5216** | 3NA3824-6 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3RT2037 | 3RT2038 | 3RT2035 | 3RT2037 |
| **3RW5217** | 3NA3824-6 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3RT2038 | 3RT2046 | 3RT2035 | 3RT2037 |
| **3RW5224** | 3NA3824-6 | 3RT2036 | 3RT2037 | 3NA3824-6 | 3RT2046 | 3RT2047 | 3RT2036 | 3RT2037 |
| **3RW5225** | 3NA3830-6 | 3RT2037 | 3RT2046 | 3NA3830-6 | 3RT2047 | 3RT1054 | 3RT2037 | 3RT2046 |
| **3RW5226** | 3NA3132-6 | 3RT2038 | 3RT2046 | 3NA3132-6 | 3RT1055 | 3RT1055 | 3RT2038 | 3RT2046 |
| **3RW5227** | 3NA3136-6 | 3RT2046 | 3RT2047 | 3NA3136-6 | 3RT1056 | 3RT1056 | 3RT2046 | 3RT2047 |
| **3RW5234** | 3NA3244-6 | 3RT1054 | 3RT1054 | 3NA3244-6 | 3RT1064 | 3RT1064 | 3RT1054 | 3RT1054 |
| **3RW5235** | 3NA3244-6 | 3RT1055 | 3RT1055 | 3NA3244-6 | 3RT1065 | 3RT1065 | 3RT1055 | 3RT1055 |
| **3RW5236** | 3NA3365-6 | 3RT1056 | 3RT1064 | 3NA3365-6 | 3RT1066 | 3RT1075 | 3RT1056 | 3RT1064 |
| **3RW5243** | 2 x 3NA3354-6 | 3RT1064 | 3RT1064 | 2 x 3NA3354-6 | 3RT1075 | 3RT1075 | 3RT1064 | 3RT1064 |
| **3RW5244** | 2 x 3NA3354-6 | 3RT1065 | 3RT1065 | 2 x 3NA3354-6 | 3RT1076 | 3RT1076 | 3RT1065 | 3RT1065 |
| **3RW5245** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3TF68 | 3TF68 | 3RT1075 | 3RT1075 |
| **3RW5246** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3TF69 | 3TF69 | 3RT1075 | 3RT1075 |
| **3RW5247** | 2 x 3NA3365-6 | 3RT1076 | 3RT1276 | 2 x 3NA3365-6 | 3TF69 | 3TF69 | 3RT1076 | 3RT1276 |
| **3RW5248** | 2 x 3NA3365-6 | 3TF68 | 3TF68 | 2 x 3NA3365-6 | -- | -- | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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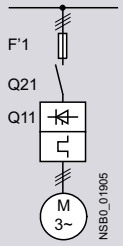
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gR/gS class fuse** | **Line contactor (optional)** | |
|---|---|---|---|
| | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F'1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | |
| **3RW5213** | 3NE1815-0 | 3RT2025 | 3RT2025 |
| **3RW5214** | 3NE1802-0 | 3RT2026 | 3RT2027 |
| **3RW5215** | 3NE1817-0 | 3RT2027 | 3RT2037 |
| **3RW5216** | 3NE1818-0 | 3RT2035 | 3RT2037 |
| **3RW5217** | 3NE1820-0 | 3RT2035 | 3RT2037 |
| **3RW5224** | 3NE1021-2 | 3RT2036 | 3RT2037 |
| **3RW5225** | 3NE1022-0 | 3RT2037 | 3RT2046 |
| **3RW5226** | 3NE1224-0 | 3RT2038 | 3RT2046 |
| **3RW5227** | 3NE1224-0 | 3RT2046 | 3RT2047 |
| **3RW5234** | 3NE1225-0 | 3RT1054 | 3RT1054 |
| **3RW5235** | 3NE1227-0 | 3RT1055 | 3RT1055 |
| **3RW5236** | 3NE1230-0 | 3RT1056 | 3RT1064 |
| **3RW5243** | 3NE1230-2[1)] | 3RT1064 | 3RT1064 |
| **3RW5244** | 3NE1331-0 | 3RT1065 | 3RT1065 |
| **3RW5245** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5246** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5247** | 3NE1436-2 | 3RT1076 | 3RT1276 |
| **3RW5248** | 3NE1437-2 | 3TF68 | 3TF68 |

[1)] For systems up to 500 V.

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

In inside-delta circuits, a gR/gS class full-range fuse could not provide the semiconductor protection of the delta-connected soft starter with a short-circuit breaking capacity that is adequate for practical use. In this case, we recommend using aR class partial-range fuses for semiconductor protection for type of coordination "2" (see page 6/66).

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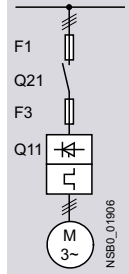
***Motor feeders according to IEC with 3NE8/3NE4/3NE3 fuses***

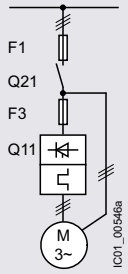
aR class partial-range fuses for semiconductor protection

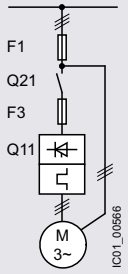
Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** | **aR class fuse** | **Line contactor (optional)** | | **gG class fuse** | **aR class fuse** | **Line contactor (optional)** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 500 V | for systems up to 480 V | for systems up to 600 V | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V in the supply cable | for systems up to 600 V in the supply cable | for systems up to 480 V in the delta | for systems up to 600 V in the delta |
| Q11 | F1 | F3 | Q21 | Q21 | F1 | F3 | Q21 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | | **Inside-delta circuit** | | | | | |
| **3RW5213** | 3NA3820-6 | 3NE8017-1 | 3RT2025 | 3RT2025 | 3NA3820-6 | 3NE8017-1 | 3RT2027 | 3RT2035 | 3RT2025 | 3RT2025 |
| **3RW5214** | 3NA3820-6 | 3NE8020-1 | 3RT2026 | 3RT2027 | 3NA3820-6 | 3NE8020-1 | 3RT2027 | 3RT2037 | 3RT2026 | 3RT2027 |
| **3RW5215** | 3NA3822-6 | 3NE8021-1 | 3RT2027 | 3RT2037 | 3NA3822-6 | 3NE8021-1 | 3RT2036 | 3RT2037 | 3RT2027 | 3RT2037 |
| **3RW5216** | 3NA3824-6 | 3NE8022-1 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3NE8022-1 | 3RT2037 | 3RT2038 | 3RT2035 | 3RT2037 |
| **3RW5217** | 3NA3824-6 | 3NE8024-1 | 3RT2035 | 3RT2037 | 3NA3824-6 | 3NE8024-1 | 3RT2038 | 3RT2046 | 3RT2035 | 3RT2037 |
| **3RW5224** | 3NA3824-6 | 3NE8024-1 | 3RT2036 | 3RT2037 | 3NA3824-6 | 3NE8024-1 | 3RT2046 | 3RT2047 | 3RT2036 | 3RT2037 |
| **3RW5225** | 3NA3830-6 | 3NE8024-1 | 3RT2037 | 3RT2046 | 3NA3830-6 | 3NE8024-1 | 3RT2047 | 3RT1054 | 3RT2037 | 3RT2046 |
| **3RW5226** | 3NA3132-6 | 3NE8024-1 | 3RT2038 | 3RT2046 | 3NA3132-6 | 3NE8024-1 | 3RT1055 | 3RT1055 | 3RT2038 | 3RT2046 |
| **3RW5227** | 3NA3136-6 | 3NE4124 | 3RT2046 | 3RT2047 | 3NA3136-6 | 3NE4124 | 3RT1056 | 3RT1056 | 3RT2046 | 3RT2047 |
| **3RW5234** | 3NA3244-6 | 3NE3332-0B | 3RT1054 | 3RT1054 | 3NA3244-6 | 3NE3332-0B | 3RT1064 | 3RT1064 | 3RT1054 | 3RT1054 |
| **3RW5235** | 3NA3244-6 | 3NE3334-0B | 3RT1055 | 3RT1055 | 3NA3244-6 | 3NE3334-0B | 3RT1065 | 3RT1065 | 3RT1055 | 3RT1055 |
| **3RW5236** | 3NA3365-6 | 3NE3335 | 3RT1056 | 3RT1064 | 3NA3365-6 | 3NE3335 | 3RT1066 | 3RT1075 | 3RT1056 | 3RT1064 |
| **3RW5243** | 2 x 3NA3354-6 | 3NE3333 | 3RT1064 | 3RT1064 | 2 x 3NA3354-6 | 3NE3333 | 3RT1075 | 3RT1075 | 3RT1064 | 3RT1064 |
| **3RW5244** | 2 x 3NA3354-6 | 3NE3336 | 3RT1065 | 3RT1065 | 2 x 3NA3354-6 | 3NE3336 | 3RT1076 | 3RT1076 | 3RT1065 | 3RT1065 |
| **3RW5245** | 2 x 3NA3365-6 | 3NE3336 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3NE3336 | 3TF68 | 3TF68 | 3RT1075 | 3RT1075 |
| **3RW5246** | 2 x 3NA3365-6 | 3NE3336 | 3RT1075 | 3RT1075 | 2 x 3NA3365-6 | 3NE3336 | 3TF69 | 3TF69 | 3RT1075 | 3RT1075 |
| **3RW5247** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1076 | 3RT1276 | 2 x 3NA3365-6 | 3NE3340-8 | 3TF69 | 3TF69 | 3RT1076 | 3RT1276 |
| **3RW5248** | 2 x 3NA3365-6 | 3NE3340-8 | 3TF68 | 3TF68 | 2 x 3NA3365-6 | 3NE3340-8 | -- | -- | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For CLASS 10 applications, as an alternative to the gG class full-range fuses for cable and line protection 3NA3 (F1), 3RV2 motor starter protectors/3VA circuit breakers can also be used, possibly with reduced short-circuit breaking capacity (see page 6/63). In these cases, optional line contactors can be dispensed with.

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## Selection and ordering data

### *For normal starting (CLASS 10A)*

3RW521.

3RW522.

3RW523.

3RW524.

| At 40 °C | | | | At 50 °C | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| 13 | 3 | **5.5** | -- | 11.5 | 2 | 3 | **7.5** | -- | **3RW5213-□□C□4** | | 1 | 1 unit | 42S |
| 18 | 4 | **7.5** | -- | 15.9 | 3 | 5 | **10** | -- | **3RW5214-□□C□4** | | 1 | 1 unit | 42S |
| 25 | 5.5 | **11** | -- | 22.3 | 5 | 7.5 | **15** | -- | **3RW5215-□□C□4** | | 1 | 1 unit | 42S |
| 32 | 7.5 | **15** | -- | 28.4 | 7.5 | 10 | **20** | -- | **3RW5216-□□C□4** | | 1 | 1 unit | 42S |
| 38 | 11 | **18.5** | -- | 33.5 | 10 | 10 | **20** | -- | **3RW5217-□□C□4** | | 1 | 1 unit | 42S |
| 47 | 11 | **22** | -- | 41.6 | 10 | 10 | **30** | -- | **3RW5224-□□C□4** | | 1 | 1 unit | 42S |
| 63 | 18.5 | **30** | -- | 55.5 | 15 | 20 | **40** | -- | **3RW5225-□□C□4** | | 1 | 1 unit | 42S |
| 77 | 22 | **37** | -- | 68 | 20 | 25 | **50** | -- | **3RW5226-□□C□4** | | 1 | 1 unit | 42S |
| 93 | 22 | **45** | -- | 82.5 | 25 | 30 | **60** | -- | **3RW5227-□□C□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Screw terminals — 1 3
Spring-loaded terminals

**Product function**
Analog output
Thermistor motor protection — A T

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC — 0 1

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

| At 40 °C | | | | At 50 °C | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| 113 | 30 | **55** | -- | 101 | 30 | 30 | **75** | -- | **3RW5234-□□C□4** | | 1 | 1 unit | 42S |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | **3RW5235-□□C□4** | | 1 | 1 unit | 42S |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | **3RW5236-□□C□4** | | 1 | 1 unit | 42S |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | **3RW5243-□□C□4** | | 1 | 1 unit | 42S |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | **3RW5244-□□C□4** | | 1 | 1 unit | 42S |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | **3RW5245-□□C□4** | | 1 | 1 unit | 42S |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | **3RW5246-□□C□4** | | 1 | 1 unit | 42S |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | **3RW5247-□□C□4** | | 1 | 1 unit | 42S |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | **3RW5248-□□C□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals — 2 6
Screw terminals

**Product function**
Analog output
Thermistor motor protection — A T

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC — 0 1

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3RW52 soft starters > Standard (inline) circuit *IE3/IE4 ready*

***For normal starting (CLASS 10A)***

3RW521.

3RW522.

3RW523.

3RW524.

| At 40 °C | | | | At 50 °C | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | | |
| 13 | 3 | **5.5** | 7.5 | 11.5 | 2 | 3 | **7.5** | 10 | **3RW5213-□□C□5** | | 1 | 1 unit | 42S |
| 18 | 4 | **7.5** | 11 | 15.9 | 3 | 5 | **10** | 10 | **3RW5214-□□C□5** | | 1 | 1 unit | 42S |
| 25 | 5.5 | **11** | 15 | 22.3 | 5 | 7.5 | **15** | 20 | **3RW5215-□□C□5** | | 1 | 1 unit | 42S |
| 32 | 7.5 | **15** | 18.5 | 28.4 | 7.5 | 10 | **20** | 25 | **3RW5216-□□C□5** | | 1 | 1 unit | 42S |
| 38 | 11 | **18.5** | 22 | 33.5 | 10 | 10 | **20** | 30 | **3RW5217-□□C□5** | | 1 | 1 unit | 42S |
| 47 | 11 | **22** | 30 | 41.6 | 10 | 10 | **30** | 40 | **3RW5224-□□C□5** | | 1 | 1 unit | 42S |
| 63 | 18.5 | **30** | 37 | 55.5 | 15 | 20 | **40** | 50 | **3RW5225-□□C□5** | | 1 | 1 unit | 42S |
| 77 | 22 | **37** | 45 | 68 | 20 | 25 | **50** | 60 | **3RW5226-□□C□5** | | 1 | 1 unit | 42S |
| 93 | 22 | **45** | 55 | 82.5 | 25 | 30 | **60** | 75 | **3RW5227-□□C□5** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Screw terminals
Spring-loaded terminals

**Product function**
Analog output
Thermistor motor protection

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**3RW5213-□□C□5 / 3RW5214-□□C□5 / 3RW5215-□□C□5 / 3RW5216-□□C□5 / 3RW5217-□□C□5 / 3RW5224-□□C□5 / 3RW5225-□□C□5 / 3RW5226-□□C□5 / 3RW5227-□□C□5**
1 3 A T 0 1

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

| At 40 °C | | | | At 50 °C | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | | |
| 113 | 30 | **55** | 75 | 101 | 30 | 30 | **75** | 100 | **3RW5234-□□C□5** | | 1 | 1 unit | 42S |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | **3RW5235-□□C□5** | | 1 | 1 unit | 42S |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | **3RW5236-□□C□5** | | 1 | 1 unit | 42S |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | **3RW5243-□□C□5** | | 1 | 1 unit | 42S |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | **3RW5244-□□C□5** | | 1 | 1 unit | 42S |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | **3RW5245-□□C□5** | | 1 | 1 unit | 42S |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | **3RW5246-□□C□5** | | 1 | 1 unit | 42S |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | **3RW5247-□□C□5** | | 1 | 1 unit | 42S |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | **3RW5248-□□C□5** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**Product function**
Analog output
Thermistor motor protection

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**3RW5234-□□C□5 / 3RW5235-□□C□5 / 3RW5236-□□C□5 / 3RW5243-□□C□5 / 3RW5244-□□C□5 / 3RW5245-□□C□5 / 3RW5246-□□C□5 / 3RW5247-□□C□5 / 3RW5248-□□C□5**
2 6 A T 0 1

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

### *For normal starting (CLASS 10A)*

3RW521.

3RW522.

3RW523.

3RW524.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | -- | 19.9 | 5 | 5 | **10** | -- | **3RW5213-□□C□4** | | 1 | 1 unit | 42S |
| 31.5 | 7.5 | **15** | -- | 28 | 7.5 | 7.5 | **20** | -- | **3RW5214-□□C□4** | | 1 | 1 unit | 42S |
| 43.3 | 11 | **18.5** | -- | 39 | 10 | 10 | **25** | -- | **3RW5215-□□C□4** | | 1 | 1 unit | 42S |
| 55.4 | 15 | **22** | -- | 49 | 15 | 15 | **30** | -- | **3RW5216-□□C□4** | | 1 | 1 unit | 42S |
| 65.8 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **3RW5217-□□C□4** | | 1 | 1 unit | 42S |
| 81.4 | 22 | **45** | -- | 72 | 20 | 25 | **50** | -- | **3RW5224-□□C□4** | | 1 | 1 unit | 42S |
| 109 | 30 | **55** | -- | 96 | 30 | 30 | **75** | -- | **3RW5225-□□C□4** | | 1 | 1 unit | 42S |
| 133 | 37 | **75** | -- | 118 | 30 | 40 | **75** | -- | **3RW5226-□□C□4** | | 1 | 1 unit | 42S |
| 161 | 45 | **90** | -- | 143 | 40 | 50 | **100** | -- | **3RW5227-□□C□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Screw terminals
Spring-loaded terminals

**Product function**
Analog output
Thermistor motor protection

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**3RW5213-□□C□4** → 1 3 A T 0 1

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | |
| 196 | 55 | **110** | -- | 175 | 50 | 60 | **125** | -- | **3RW5234-□□C□4** | | 1 | 1 unit | 42S |
| 248 | 75 | **132** | -- | 222 | 75 | 75 | **150** | -- | **3RW5235-□□C□4** | | 1 | 1 unit | 42S |
| 296 | 90 | **160** | -- | 265 | 75 | 100 | **200** | -- | **3RW5236-□□C□4** | | 1 | 1 unit | 42S |
| 364 | 110 | **200** | -- | 322 | 100 | 125 | **250** | -- | **3RW5243-□□C□4** | | 1 | 1 unit | 42S |
| 433 | 132 | **250** | -- | 381 | 125 | 150 | **300** | -- | **3RW5244-□□C□4** | | 1 | 1 unit | 42S |
| 546 | 160 | **315** | -- | 483 | 150 | 200 | **400** | -- | **3RW5245-□□C□4** | | 1 | 1 unit | 42S |
| 641 | 200 | **355** | -- | 568 | 200 | 200 | **450** | -- | **3RW5246-□□C□4** | | 1 | 1 unit | 42S |
| 814 | 250 | **400** | -- | 721 | 250 | 250 | **600** | -- | **3RW5247-□□C□4** | | 1 | 1 unit | 42S |
| 987 | 315 | **560** | -- | 873 | 300 | 350 | **750** | -- | **3RW5248-□□C□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**Product function**
Analog output
Thermistor motor protection

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**3RW5234-□□C□4** → 2 6 A T 0 1

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3RW52 soft starters > Inside-delta circuit *IE3/IE4 ready*

***For normal starting (CLASS 10A)***

3RW521.

3RW522.

3RW523.

3RW524.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | | |
| 22.5 | 5.5 | **11** | 15 | 19.9 | 5 | 5 | **10** | 15 | **3RW5213-□□C□5** | | 1 | 1 unit | 42S |
| 31.5 | 7.5 | **15** | 18.5 | 28 | 7.5 | 7.5 | **20** | 25 | **3RW5214-□□C□5** | | 1 | 1 unit | 42S |
| 43.3 | 11 | **18.5** | 22 | 39 | 10 | 10 | **25** | 30 | **3RW5215-□□C□5** | | 1 | 1 unit | 42S |
| 55.4 | 15 | **22** | 30 | 49 | 15 | 15 | **30** | 40 | **3RW5216-□□C□5** | | 1 | 1 unit | 42S |
| 65.8 | 18.5 | **30** | 37 | 58 | 15 | 20 | **40** | 50 | **3RW5217-□□C□5** | | 1 | 1 unit | 42S |
| 81.4 | 22 | **45** | 45 | 72 | 20 | 25 | **50** | 60 | **3RW5224-□□C□5** | | 1 | 1 unit | 42S |
| 109 | 30 | **55** | 55 | 96 | 30 | 30 | **75** | 75 | **3RW5225-□□C□5** | | 1 | 1 unit | 42S |
| 133 | 37 | **75** | 90 | 118 | 30 | 40 | **75** | 100 | **3RW5226-□□C□5** | | 1 | 1 unit | 42S |
| 161 | 45 | **90** | 110 | 143 | 40 | 50 | **100** | 125 | **3RW5227-□□C□5** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Screw terminals
Spring-loaded terminals

**Product function**
Analog output
Thermistor motor protection

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**3RW5227-□□C□5** → **1 3** **A T** **0 1**

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

| At 40 °C for inside-delta circuit | | | | At 50 °C for inside-delta circuit | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | | |
| 196 | 55 | **110** | 132 | 175 | 50 | 60 | **125** | 150 | **3RW5234-□□C□5** | | 1 | 1 unit | 42S |
| 248 | 75 | **132** | 160 | 222 | 75 | 75 | **150** | 200 | **3RW5235-□□C□5** | | 1 | 1 unit | 42S |
| 296 | 90 | **160** | 200 | 265 | 75 | 100 | **200** | 250 | **3RW5236-□□C□5** | | 1 | 1 unit | 42S |
| 364 | 110 | **200** | 250 | 322 | 100 | 125 | **250** | 300 | **3RW5243-□□C□5** | | 1 | 1 unit | 42S |
| 433 | 132 | **250** | 315 | 381 | 125 | 150 | **300** | 350 | **3RW5244-□□C□5** | | 1 | 1 unit | 42S |
| 546 | 160 | **315** | 355 | 483 | 150 | 200 | **400** | 500 | **3RW5245-□□C□5** | | 1 | 1 unit | 42S |
| 641 | 200 | **355** | 450 | 568 | 200 | 200 | **450** | 600 | **3RW5246-□□C□5** | | 1 | 1 unit | 42S |
| 814 | 250 | **400** | 500 | 721 | 250 | 250 | **600** | 800 | **3RW5247-□□C□5** | | 1 | 1 unit | 42S |
| 987 | 315 | **560** | 630 | 873 | 300 | 350 | **750** | 950 | **3RW5248-□□C□5** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**Product function**
Analog output
Thermistor motor protection

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**3RW5248-□□C□5** → **2 6** **A T** **0 1**

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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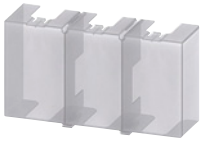
## Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Fan covers** | | | | | | | | | |
| 3RW5983-0FC00 | **Fan cover** | 3RW5216/17 (1x), 3RW5226/27 (2x), 3RW523 (2x) | -- | -- | **3RW5983-0FC00** | | 1 | 1 unit | 42S |
| | | 3RW524 (1x) | -- | -- | **3RW5984-0FC00** | | 1 | 1 unit | 42S |
| **Terminal covers** | | | | | | | | | |
|  3RW5983-0TC20 | **Terminal cover** | 3RW522 (2x), 3RW523 (2x) | -- | -- | **3RW5983-0TC20** | | 1 | 1 unit | 42S |
| 3RW5984-0TC20 | | 3RW524 (2x) | -- | -- | **3RW5984-0TC20** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | | |
| 3RW5950-0GL30 | **Hinged cover** | 3RW52 | With cutout for High-Feature HMI module | -- | **3RW5950-0GL30** | | 1 | 1 unit | 42S |
| 3RW5950-0GL40 | | | With cutout for Standard HMI module | -- | **3RW5950-0GL40** | | 1 | 1 unit | 42S |
| **Communications modules** | | | | | | | | | |
| 3RW5980-0CS00 | **Communications module**[1] | 3RW52 | PROFINET Standard | -- | **3RW5980-0CS00** | | 1 | 1 unit | 42S |
| | | | PROFIBUS | -- | **3RW5980-0CP00** | | 1 | 1 unit | 42S |
| | | | EtherNet/IP | -- | **3RW5980-0CE00** | | 1 | 1 unit | 42S |
| 3RW5980-0CR00 | | | Modbus RTU | -- | **3RW5980-0CR00** | | 1 | 1 unit | 42S |
| | | | Modbus TCP | -- | **3RW5980-0CT00** | | 1 | 1 unit | 42S |

[1] Use the recommended connection plugs for attaching the bus connecting cable (e.g. angled or suitable for industrial use), see Equipment Manual for the relevant communications module.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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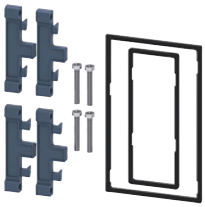
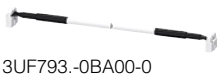
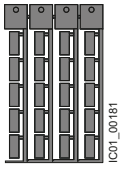
| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | | |
| 3RW5980-0HF00 | **HMI module** | 3RW52 | High-Feature | -- | **3RW5980-0HF00** | | 1 | 1 unit | 42S |
| 3RW5980-0HS00 | | | Standard | -- | **3RW5980-0HS00** | | 1 | 1 unit | 42S |
|  3RW5980-0HD00 | **IP65 door mounting kit for HMI modules** | 3RW52 | IP65 | For HMI modules | **3RW5980-0HD00** | | 1 | 1 unit | 42S |
| **Connecting cables** | | | | | | | | | |
|  3UF793.-0BA00-0 | **HMI connecting cable** | 3RW52 | 5 m, round | For door mounting | **3RW5980-0HC60** | | 1 | 1 unit | 42S |
| | | | 2.5 m, round | | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 1.0 m, round | | **3UF7937-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 0.5 m, round | | **3UF7932-0BA00-0** | | 1 | 1 unit | 42J |
| 3UF7931-0AA00-0 | | | 0.1 m, flat | For mounting in the device | **3UF7931-0AA00-0** | | 1 | 1 unit | 42J |
| **Further accessories** | | | | | | | | | |
| 3ZY1311-0AA00 | **Push-in lugs for wall mounting** | -- | Two lugs are required per device | For HMI modules and communications modules | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| **Blank labels** | | | | | | | | | |
|   3RT2900-1SB20 | **Unit labeling plates**[1] | -- | 20 mm x 7 mm, titanium gray | For SIRIUS devices | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

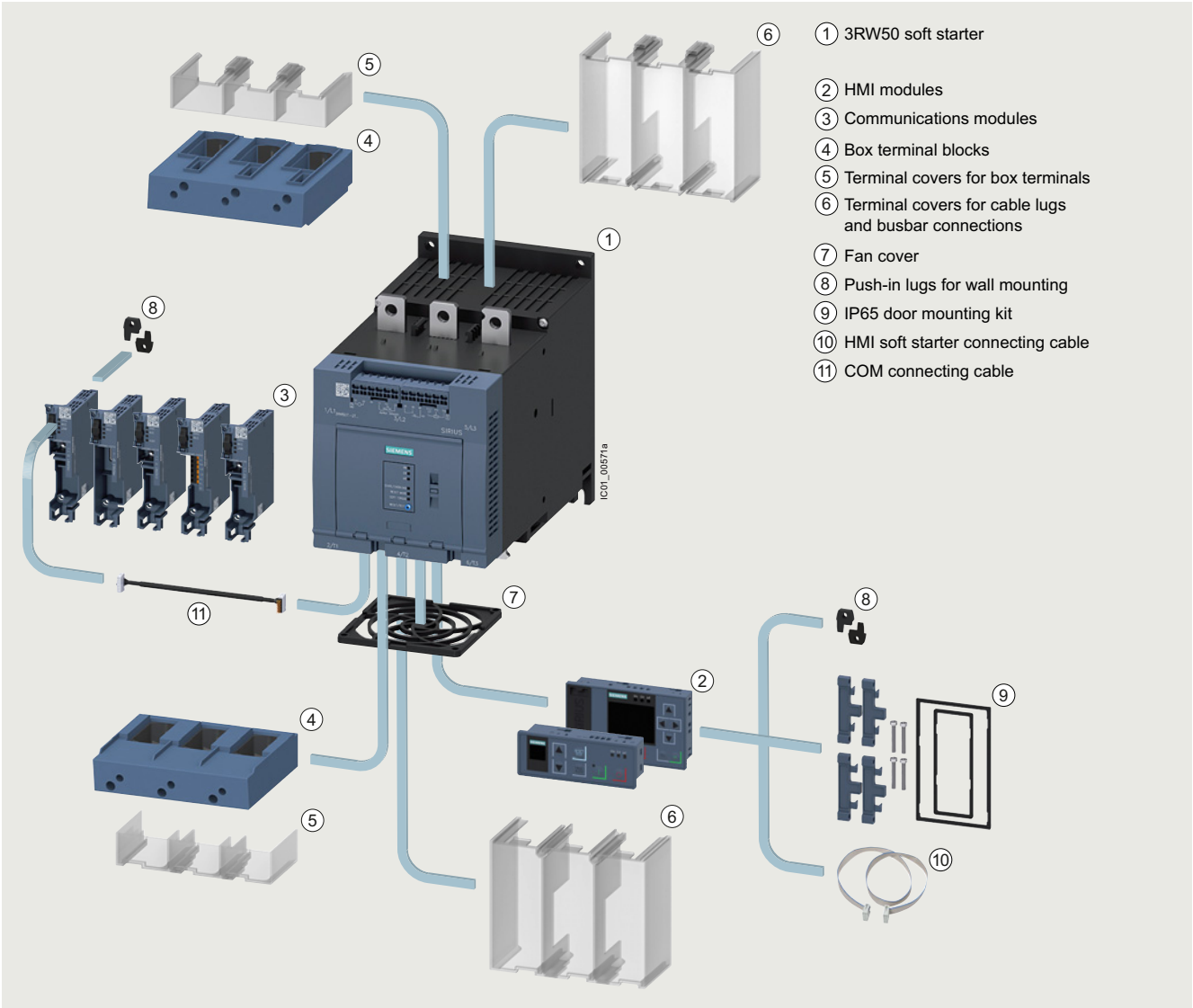
| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter | Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |
| Industry Mall, see www.siemens.com/product?3RW50 | SIRIUS Soft Starter ES (TIA Portal) for diagnostics, see page 6/9 or https://support.industry.siemens.com/cs/ww/en/ps/24230/dl |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw50 | Decision-making support for motor starting – Starting and running three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide |
| Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 | Conversion tool, see www.siemens.com/conversion-tool |

SIRIUS 3RW50 soft starters device family

SIRIUS 3RW50 Basic Performance soft starters are the compact solution for standard applications. With 2-phase motor control, they cover the performance range from 75 to 315 kW (at 400 V).

Optional HMI modules for installation in the control cabinet door, laterally mountable communications modules (PROFINET, PROFIBUS, EtherNet/IP and Modbus) and either an analog output or thermistor motor protection ensure maximum flexibility.

With their modern hybrid switching technology, the SIRIUS 3RW50 soft starters offer efficient switching for long-term, energy-saving use.




SIRIUS 3RW50 Basic Performance soft starter with accessories (see page 6/82), for expansion with HMI module or communications module

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## Benefits

| Product characteristics/function | Performance features/benefits |
|---|---|
| Hybrid switching technology and 2-phase motor control | Minimum power loss and optimized motor control by avoiding DC components |
| Small and compact design | Space-saving, clearly arranged control panel layout |
| TIA integration – communications modules and HMI modules optional | Efficient configuration and maximum flexibility in automation engineering |
| Motor overload and intrinsic device protection without additional wiring | Adjustable trip classes, integrated diagnostics functions |
| Soft Torque | Reduced mechanical loading and optimum pump stop |
| Parameterization using potentiometers | Simple and fast commissioning |
| Wide range for control supply and main voltage | Low variance, high system availability even with weak supply networks |
| Certified according to ATEX/IECEx directive | Suitable for the starting of explosion-proof motors with "increased safety" type of protection |

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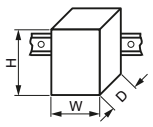
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25252/td<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109753750 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25252/faq<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| **Type** | | **3RW5055**<br>**3RW5056** | **3RW5072**<br>**3RW5073**<br>**3RW5074**<br>**3RW5075**<br>**3RW5076**<br>**3RW5077** |
|---|---|---|---|
| **Installation/fixing/dimensions** | | | |
| **Width x height x depth**   | mm | 120 x 198 x 249 | 160 x 230 x 282 |
| **Type of mounting** | | Screw fixing | |
| **Mounting position** | | For vertical mounting surface can be rotated +/- 90°,<br>for vertical mounting surface can be tilted +/- 22.5° forward or backward | |
| **Distance to be maintained with side-by-side mounting** | | | |
| • Above | mm | 100 | |
| • At the side | mm | 5 | |
| • Below | mm | 75 | |
| **Installation altitude at height above sea level, maximum**[1] | m | 5 000 | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP00 (IP20 with cover) | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front with cover | |
| **Ambient conditions** | | | |
| **Ambient temperature** | | | |
| • During operation[2] | °C | -25 ... +60 | |
| • During storage and transport | °C | -40 ... +80 | |
| **Environmental category according to IEC 60721** | | | |
| • During operation | | 3K6 (no ice formation, only occasional condensation), 3C3 (no salt mist), 3S2 (sand must not get into the devices), 3M6 | |
| • During storage | | 1K6 (only occasional condensation), 1C2 (no salt mist), 1S2 (sand must not get into the devices), 1M4 | |
| • During transport | | 2K2, 2C1, 2S1, 2M2 (max. height of fall 0.3 m) | |

[1] Derating from 1 000 m, see characteristic curve on page 6/8.

[2] Note derating above 40 °C.

| **Type** | | **3RW50..-..B0.** | **3RW50..-..B1.** |
|---|---|---|---|
| **Control circuit/control** | | | |
| **Control supply voltage** | | | |
| • At AC/DC | V | 24/24 | --/-- |
| • At AC | V | -- | 110 ... 250 |
| • Relative negative tolerance/relative positive tolerance with AC | % | -20/20 | -15/10 |
| • Relative negative tolerance/relative positive tolerance with DC | % | -20/20 | --/-- |
| **Frequency of the control supply voltage** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Type of overvoltage protection** | | Varistors | |
| **Type of short-circuit protection for control circuit**[1] | | Fuse 4 A gG ($I_{cu}$ =1 kA), fuse 6 A quick-response ($I_{cu}$ =1 kA), MCB C1 ($I_{cu}$ = 600 A), MCB C6 ($I_{cu}$ = 300 A) | |

[1] Not included in scope of supply.

| **Type** | | **3RW50..-..B.4** | **3RW50..-..B.5** |
|---|---|---|---|
| **Power electronics** | | | |
| **Operational voltage** | V | 200 ... 480 | 200 ... 600 |
| • Relative negative tolerance/relative positive tolerance | % | -15/10 | |
| **Operating frequency** | Hz | 50 ... 60 | |
| • Relative negative tolerance/relative positive tolerance | % | -10/10 | |
| **Minimum load [% of $I_M$]**[1] | % | 15 | |
| **Maximum cable length between soft starter and motor** | m | 800 | |

[1] Relative to the smallest adjustable $I_e$.

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| Type | | 3RW5055 | 3RW5056 |
|---|---|---|---|
| **Rated operational current $I_e$** | A | 143 | 171 |
| **Power electronics** | | | |
| **Load rating with rated operational current $I_e$** | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 143/128/118 | 171/153/141 |
| ***Permissible rated motor current and starts/h*** | | | |
| **Normal starting (CLASS 10A)** | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | |
| - Start-up time 5 s | 1/h | 43 | 43 |
| - Start-up time 10 s | 1/h | 18 | 18 |
| • 350% $I_M$ | | | |
| - Start-up time 5 s | 1/h | 28 | 28 |
| - Start-up time 10 s | 1/h | 10 | 9 |
| **Normal starting (CLASS 10E)** | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 143/128/118 | 171/153/141 |
| • 300% $I_M$ | | | |
| - Start-up time 10 s | 1/h | 21 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 |
| • 350% $I_M$ | | | |
| - Start-up time 10 s | 1/h | 12 | 9 |
| - Start-up time 20 s | 1/h | 4 | -- |
| **Heavy starting (CLASS 20E)** | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 108/98/88 | 135/123/111 |
| • 300% $I_M$ | | | |
| - Start-up time 20 s | 1/h | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 |
| • 350% $I_M$ | | | |
| - Start-up time 20 s | 1/h | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | |
| • Minimum/maximum | A | 68/143 | 81/117 |

| Type | | 3RW5072 | 3RW5073 | 3RW5074 | 3RW5075 | 3RW5076 | 3RW5077 |
|---|---|---|---|---|---|---|---|
| **Rated operational current $I_e$** | A | 210 | 250 | 315 | 370 | 470 | 570 |
| **Power electronics** | | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | | |
| IEC + UL/CSA, individual mounting at 40/50/60 °C, AC-53a | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| ***Permissible rated motor current and starts/h*** | | | | | | | |
| **Normal starting (CLASS 10A)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 5 s | 1/h | 43 | 43 | 43 | 43 | 43 | 28 |
| - Start-up time 10 s | 1/h | 18 | 18 | 18 | 18 | 18 | 11 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 5 s | 1/h | 28 | 28 | 28 | 28 | 28 | 16 |
| - Start-up time 10 s | 1/h | 8 | 10 | 10 | 10 | 10 | 4 |
| **Normal starting (CLASS 10E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 210/186/170 | 250/220/200 | 315/279/255 | 370/328/300 | 470/416/380 | 570/504/460 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 10 s | 1/h | 21 | 21 | 21 | 21 | 20 | 21 |
| - Start-up time 20 s | 1/h | 8 | 8 | 8 | 8 | 7 | 8 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 10 s | 1/h | 8 | 13 | 12 | 13 | 12 | 13 |
| - Start-up time 20 s | 1/h | -- | 4 | 4 | 4 | 2 | 4 |
| **Heavy starting (CLASS 20E)** | | | | | | | |
| Rated motor current $I_M$, $T_u$ = 40/50/60 °C ON period = 70%; motor protection activated | A | 162/146/130 | 200/180/160 | 219/195/171 | 258/230/202 | 272/254/218 | 284/262/240 |
| • 300% $I_M$ | | | | | | | |
| - Start-up time 20 s | 1/h | 10 | 10 | 10 | 10 | 10 | 10 |
| - Start-up time 40 s | 1/h | 4 | 4 | 4 | 4 | 4 | 4 |
| • 350% $I_M$ | | | | | | | |
| - Start-up time 20 s | 1/h | 7 | 7 | 7 | 7 | 7 | 7 |
| - Start-up time 40 s | 1/h | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| **Adjustable rated motor current $I_M$** | | | | | | | |
| • Minimum/maximum | A | 90/210 | 100/250 | 135/315 | 160/370 | 200/470 | 240/570 |

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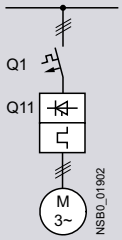
***Motor feeders according to IEC with 3VA circuit breakers (without semiconductor protection)***

Type of coordination "1", CLASS 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders
with soft starters, see page 6/12.




| Soft starters | Circuit breakers | | | |
|---|---|---|---|---|
| | for 400 V systems | | for 500 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | |
| **3RW5055** | 3VA2220-7MN32-0AA0 | 20 | 3VA2220-7MN32-0AA0 | 20 |
| **3RW5056** | 3VA2220-7MN32-0AA0 | 20 | 3VA2220-7MN32-0AA0 | 20 |
| **3RW5072** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5073** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5074** | 3VA2440-7MN32-0AA0 | 65 | 3VA2440-7MN32-0AA0 | 65 |
| **3RW5075** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5076** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |
| **3RW5077** | 3VA2580-6HN32-0AA0 | 65 | 3VA2580-6HN32-0AA0 | 65 |

Note:

The service factor and measurement inaccuracies, for example, have been taken into account for the selection of the specified motor starter protectors/circuit breakers; the specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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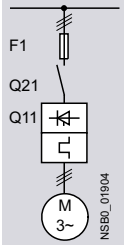
***Motor feeders according to IEC with 3NA3 fuses***

gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | Line contactor (optional) | |
|---|---|---|---|
| | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | |
| **3RW5055** | 3NA3244-6 | 3RT1055 | 3RT1055 |
| **3RW5056** | 3NA3244-6 | 3RT1056 | 3RT1064 |
| **3RW5072** | 2 x 3NA3354-6 | 3RT1064 | 3RT1064 |
| **3RW5073** | 2 x 3NA3354-6 | 3RT1065 | 3RT1065 |
| **3RW5074** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 |
| **3RW5075** | 2 x 3NA3365-6 | 3RT1075 | 3RT1075 |
| **3RW5076** | 2 x 3NA3365-6 | 3RT1076 | 3RT1076 |
| **3RW5077** | 2 x 3NA3365-6 | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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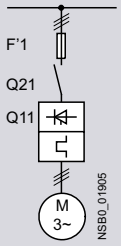
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gR/gS class fuse** | **Line contactor (optional)** | |
|---|---|---|---|
| | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F'1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | |
| **3RW5055** | 3NE1227-0 | 3RT1055 | 3RT1055 |
| **3RW5056** | 3NE1230-0 | 3RT1056 | 3RT1064 |
| **3RW5072** | 3NE1230-2 | 3RT1064 | 3RT1064 |
| **3RW5073** | 3NE1331-0 | 3RT1065 | 3RT1065 |
| **3RW5074** | 3NE1333-2 | 3RT1075 | 3RT1075 |
| **3RW5075** | 3NE1334-2 | 3RT1075 | 3RT1075 |
| **3RW5076** | 3NE1436-2 | 3RT1076 | 3RT1076 |
| **3RW5077** | 3NE1437-2 | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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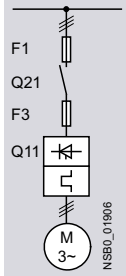
***Motor feeders according to IEC with 3NE3 fuses***

aR class partial-range fuses for semiconductor protection

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | gG class fuse | aR class fuse | Line contactor (optional) | |
|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F1 | F3 | Q21 | Q21 |
| Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | |
| **3RW5055** | 3NA3244-6 | 3NE3334-0B | 3RT1055 | 3RT1055 |
| **3RW5056** | 3NA3244-6 | 3NE3335 | 3RT1056 | 3RT1064 |
| **3RW5072** | 2 x 3NA3354-6 | 3NE3333 | 3RT1064 | 3RT1064 |
| **3RW5073** | 2 x 3NA3354-6 | 3NE3335 | 3RT1065 | 3RT1065 |
| **3RW5074** | 2 x 3NA3365-6 | 3NE3335 | 3RT1075 | 3RT1075 |
| **3RW5075** | 2 x 3NA3365-6 | 3NE3336 | 3RT1075 | 3RT1075 |
| **3RW5076** | 2 x 3NA3365-6 | 3NE3340-8 | 3RT1076 | 3RT1076 |
| **3RW5077** | 2 x 3NA3365-6 | 3NE3340-8 | 3TF68 | 3TF68 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For CLASS 10 applications, as an alternative to the gG class full-range fuses for cable and line protection 3NA3 (F1), 3VA circuit breakers can also be used, possibly with reduced short-circuit breaking capacity (see page 6/77). In these cases, optional line contactors can be dispensed with.

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## Selection and ordering data

### *For normal starting (CLASS 10E)*

3RW5055

3RW5075

| At 40 °C | | | | At 50 °C | | | | | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | | |
| **Operational voltage 200 ... 480 V** | | | | | | | | | | | | | | |
| 143 | 37 | **75** | -- | 128 | 40 | 40 | **100** | -- | S6 | **3RW5055-□□B□4** | | 1 | 1 unit | 42S |
| 171 | 45 | **90** | -- | 153 | 50 | 50 | **100** | -- | S6 | **3RW5056-□□B□4** | | 1 | 1 unit | 42S |
| 210 | 55 | **110** | -- | 186 | 60 | 60 | **150** | -- | S12 | **3RW5072-□□B□4** | | 1 | 1 unit | 42S |
| 250 | 75 | **132** | -- | 220 | 60 | 75 | **150** | -- | S12 | **3RW5073-□□B□4** | | 1 | 1 unit | 42S |
| 315 | 90 | **160** | -- | 279 | 75 | 100 | **200** | -- | S12 | **3RW5074-□□B□4** | | 1 | 1 unit | 42S |
| 370 | 110 | **200** | -- | 328 | 100 | 125 | **250** | -- | S12 | **3RW5075-□□B□4** | | 1 | 1 unit | 42S |
| 470 | 132 | **250** | -- | 416 | 150 | 150 | **350** | -- | S12 | **3RW5076-□□B□4** | | 1 | 1 unit | 42S |
| 570 | 160 | **315** | -- | 504 | 150 | 200 | **400** | -- | S12 | **3RW5077-□□B□4** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**Product function**
Analog output
Thermistor motor protection

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**3RW5055-□□B□4 / 3RW5056-□□B□4 / 3RW5072-□□B□4 / 3RW5073-□□B□4 / 3RW5074-□□B□4 / 3RW5075-□□B□4 / 3RW5076-□□B□4 / 3RW5077-□□B□4**

| □□ | □ |
|---|---|
| 26 | AT |
| 01 | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

| At 40 °C | | | | At 50 °C | | | | | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current | Operating power for three-phase motors at 230 V | at 400 V | at 500 V | Operational current | Rating [hp] for three-phase motors at 200/208 V | at 220/230 V | at 460/480 V | at 575/600 V | | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | | |
| **Operational voltage 200 ... 600 V** | | | | | | | | | | | | | | |
| 143 | 37 | **75** | 90 | 128 | 40 | 40 | **100** | 125 | S6 | **3RW5055-□□B□5** | | 1 | 1 unit | 42S |
| 171 | 45 | **90** | 110 | 153 | 50 | 50 | **100** | 150 | S6 | **3RW5056-□□B□5** | | 1 | 1 unit | 42S |
| 210 | 55 | **110** | 132 | 186 | 60 | 60 | **150** | 150 | S12 | **3RW5072-□□B□5** | | 1 | 1 unit | 42S |
| 250 | 75 | **132** | 160 | 220 | 60 | 75 | **150** | 200 | S12 | **3RW5073-□□B□5** | | 1 | 1 unit | 42S |
| 315 | 90 | **160** | 200 | 279 | 75 | 100 | **200** | 250 | S12 | **3RW5074-□□B□5** | | 1 | 1 unit | 42S |
| 370 | 110 | **200** | 250 | 328 | 100 | 125 | **250** | 300 | S12 | **3RW5075-□□B□5** | | 1 | 1 unit | 42S |
| 470 | 132 | **250** | 315 | 416 | 150 | 150 | **350** | 450 | S12 | **3RW5076-□□B□5** | | 1 | 1 unit | 42S |
| 570 | 160 | **315** | 355 | 504 | 150 | 200 | **400** | 500 | S12 | **3RW5077-□□B□5** | | 1 | 1 unit | 42S |

**Type of electrical connection for the control circuit**
Spring-loaded terminals
Screw terminals

**Product function**
Analog output
Thermistor motor protection

**Control supply voltage**
24 V AC/DC
110 ... 250 V AC

**3RW5055-□□B□5 / 3RW5056-□□B□5 / 3RW5072-□□B□5 / 3RW5073-□□B□5 / 3RW5074-□□B□5 / 3RW5075-□□B□5 / 3RW5076-□□B□5 / 3RW5077-□□B□5**

| □□ | □ |
|---|---|
| 26 | AT |
| 01 | |

Note:

For the constraints for the motor outputs specified here,
see page 6/8.

* You can order this quantity or a multiple thereof.
Illustrations are approximate

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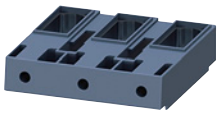
## Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Fan covers** | | | | | | | | | |
| 3RW5985-0FC00 | **Fan cover** | 3RW50 (1x) | -- | -- | **3RW5985-0FC00** | | 1 | 1 unit | 42S |
| **Box terminal block** | | | | | | | | | |
|  3RT1956-4G | **Box terminal block for round and ribbon cables** | 3RW505 (2x) | Up to 70 $mm^2$ | -- | **3RT1955-4G** | | 1 | 1 unit | 41B |
| | | | Up to 120 $mm^2$ | -- | **3RT1956-4G** | | 1 | 1 unit | 41B |
| | | 3RW507 (2x) | Up to 240 $mm^2$ (with auxiliary conductor connection) | -- | **3RT1966-4G** | | 1 | 1 unit | 41B |
| **Terminal covers** | | | | | | | | | |
| 3RT1956-4EA2 | **Covers for box terminals** | 3RW505 (2x) | -- | -- | **3RT1956-4EA2** | | 1 | 1 unit | 41B |
| | | 3RW507 (2x) | -- | -- | **3RT1966-4EA2** | | 1 | 1 unit | 41B |
| 3RT1966-4EA1 | **Covers for cable lugs and busbar connections** | 3RW505 (2x) | -- | -- | **3RT1956-4EA1** | | 1 | 1 unit | 41B |
| | | 3RW507 (2x) | -- | -- | **3RT1966-4EA1** | | 1 | 1 unit | 41B |
| **Communications modules** | | | | | | | | | |
| 3RW5980-0CS00 | **Communications module**[1] | 3RW50 | PROFINET Standard | -- | **3RW5980-0CS00** | | 1 | 1 unit | 42S |
| | | | PROFIBUS | | **3RW5980-0CP00** | | 1 | 1 unit | 42S |
| | | | EtherNet/IP | | **3RW5980-0CE00** | | 1 | 1 unit | 42S |
| | | | Modbus RTU | | **3RW5980-0CR00** | | 1 | 1 unit | 42S |
| | | | Modbus TCP | | **3RW5980-0CT00** | | 1 | 1 unit | 42S |
| 3RW5900-0CC00 | **COM connecting cable** For mounting laterally on the device | 3RW50 | 0.3 m, round | -- | **3RW5900-0CC00** | | 1 | 1 unit | 42S |

[1] Use the recommended connection plugs for attaching the bus connecting cable (e.g. angled or suitable for industrial use), see Equipment Manual for the relevant communications module.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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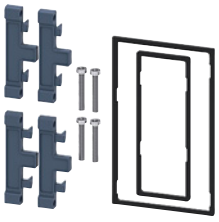
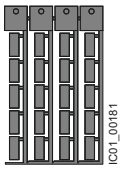
| | Product designation | Manufacturer's article number of the soft starter | Product version | Application | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | | |
| 3RW5980-0HF00 | **HMI module** | 3RW50 | High-Feature | -- | **3RW5980-0HF00** | | 1 | 1 unit | 42S |
| 3RW5980-0HS00 | | | Standard | -- | **3RW5980-0HS00** | | 1 | 1 unit | 42S |
|  3RW5980-0HD00 | **IP65 door mounting kit for HMI modules** | 3RW50 | IP65 | For HMI modules | **3RW5980-0HD00** | | 1 | 1 unit | 42S |
| **Connecting cables** | | | | | | | | | |
| 3UF793.-0BA00-0 | **HMI connecting cable** | 3RW50 | 5 m, round | For door mounting | **3RW5980-0HC60** | | 1 | 1 unit | 42S |
| | | | 2.5 m, round | | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 1.0 m, round | | **3UF7937-0BA00-0** | | 1 | 1 unit | 42J |
| | | | 0.5 m, round | | **3UF7932-0BA00-0** | | 1 | 1 unit | 42J |
| **Further accessories** | | | | | | | | | |
| 3ZY1311-0AA00 | **Push-in lugs for wall mounting** | -- | Two lugs are required per device | For HMI modules and communications modules | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| **Blank labels** | | | | | | | | | |
|   3RT2900-1SB20 | **Unit labeling plates**[1] | -- | 20 mm x 7 mm, titanium gray | For SIRIUS devices | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

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## Overview

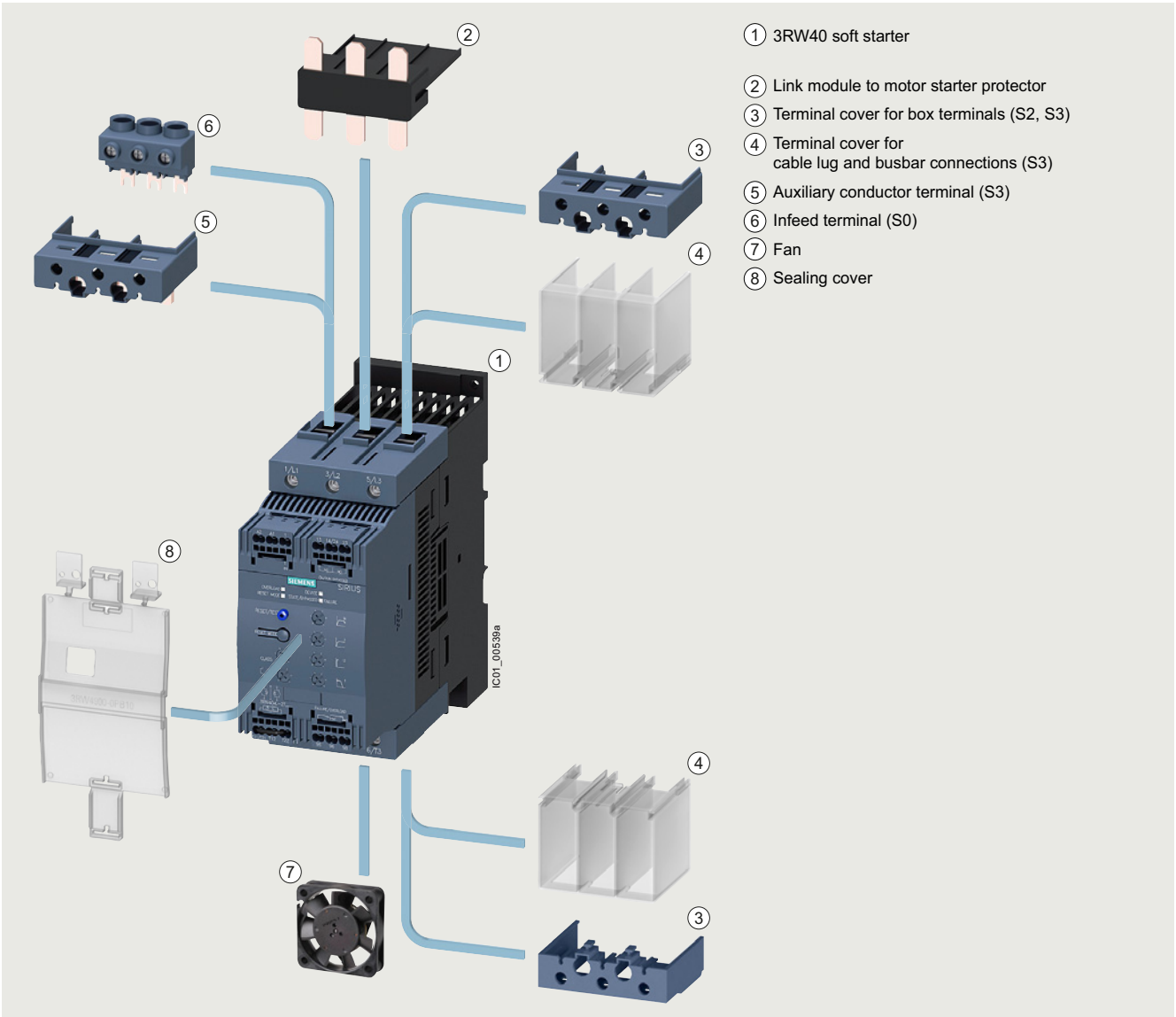
| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter<br>Industry Mall, see www.siemens.com/product?3RW40 | TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw40<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917<br>Conversion tool, see www.siemens.com/conversion-tool |

SIRIUS 3RW40 soft starter

The SIRIUS 3RW40 Basic Performance soft starters are suitable for soft starting and stopping of three-phase asynchronous motors.

Thanks to 2-phase control, not only is the current kept at minimum values in all three phases throughout the entire starting time, but disturbing direct current components are also eliminated. This not only enables the 2-phase starting of motors up to 55 kW (at 400 V) but also avoids the current and torque peaks which occur e.g. with star-delta (wye-delta) starters.

The SIRIUS 3RW40 soft starters are suitable for starting explosion-proof motors with "increased safety" type of protection EEx e according to ATEX Directive 94/9/EC.




SIRIUS 3RW40 Basic Performance soft starter with accessories (see page 6/94)

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## Benefits

3RW402.

3RW403.

3RW404.

| Product characteristics/function | Performance features/benefits |
|---|---|
| Small and compact design | Space-saving, clearly arranged control panel layout |
| Motor overload and intrinsic device protection without additional wiring | Adjustable trip classes, integrated diagnostics functions |
| Integrated in the SIRIUS modular system | Link modules to motor starter protectors |
| Hybrid switching technology and 2-phase motor control | Minimum power loss and optimized motor control by avoiding DC components |
| Certified according to ATEX Directive 94/9/EC | Suitable for starting explosion-proof motors with "increased safety" type of protection EEx e. |
| Optional thermistor motor protection | Full motor protection |

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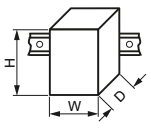
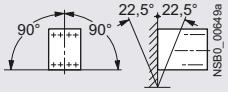
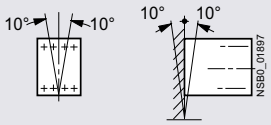
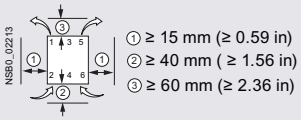
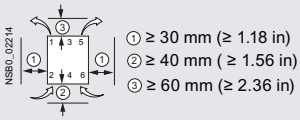
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25251/td | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25251/faq |
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/38752095 | Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917 |

| **Type** | | | **3RW402.** | **3RW403.** | **3RW404.** |
|---|---|---|---|---|---|
| **Mechanics and environment** | | | | | |
| **Mounting dimensions (W x H x D)** |  | | | | |
| • Screw terminals | | mm | 45 x 125 x 154 | 55 x 144 x 170 | 70 x 160 x 188 |
| • Spring-loaded terminals | | mm | 45 x 150 x 154 | 55 x 144 x 170 | 70 x 160 x 188 |
| **Permissible ambient temperature** | | | | | |
| During operation | | °C | -25 ... +60 (derating from +40) | | |
| During storage | | °C | -40 ... +80 | | |
| **Weight** | | kg | 0.77 | 1.35 | 1.9 |
| **Permissible mounting position**[1] | | | | | |
| • With auxiliary fan (for 3RW402. to 3RW404.) |  | | | | |
| • Without auxiliary fan (for 3RW402. to 3RW404.) |  | | | | |
| **Installation type**[1] | Stand-alone installation | |  ① ≥ 15 mm (≥ 0.59 in) ② ≥ 40 mm ( ≥ 1.56 in) ③ ≥ 60 mm (≥ 2.36 in) |  ① ≥ 30 mm (≥ 1.18 in) ② ≥ 40 mm ( ≥ 1.56 in) ③ ≥ 60 mm (≥ 2.36 in) | |
| **Permissible installation altitude** | | m | 5 000 (Derating from 1 000, see characteristic curve on page 6/8) | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | | |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | | |

[1] In the case of deviations, please observe derating, see Equipment Manual in the chapter "Configuration".

| **Type** | Terminal | | **3RW402., 3RW403., 3RW404.** | |
|---|---|---|---|---|
| **Control electronics** | | | | |
| **Rated values** | | | | |
| Rated control supply voltage | A1/A2 | V | 24 AC/DC | 110 ... 230 AC/DC |
| • Tolerance | | % | ± 20 | -15/+10 |
| Rated frequency | | Hz | 50/60 | |
| • Tolerance | | % | ± 10 | |

| **Type** | | **3RW402.-..B.4, 3RW403.-..B.4, 3RW404.-..B.4** | **3RW402.-..B.5, 3RW403.-..B.5, 3RW404.-..B.5** |
|---|---|---|---|
| **Power electronics** | | | |
| **Rated operational voltage** | V AC | 200 ... 480 | 400 ... 600 |
| Tolerance | % | -15/+10 | |
| **Maximum blocking voltage (thyristor)** | V AC | 1 600 | |
| **Rated frequency** | Hz | 50/60 | |
| Tolerance | % | ± 10 | |
| **Uninterrupted duty** at 40 °C (% of $I_e$) | % | 115 | |
| **Minimum load** (% of smallest adjustable rated motor current $I_M$) | % | 20 (at least 2 A) | |
| **Maximum cable length** between soft starter and motor | m | 300 | |

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| Type | | 3RW4024 | 3RW4026 | 3RW4027 | 3RW4028 |
|---|---|---|---|---|---|
| **Power electronics** | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 12.5/11/10 | 25.3/23/21 | 32.2/29/26 | 38/34/31 |
| **Smallest adjustable rated motor current $I_M$** | | | | | |
| For the motor overload protection | A | 5 | 10 | 17 | 23 |
| **Power loss** | | | | | |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 2 | 8 | 13 | 19 |
| • During starting with current limiting set to 300% $I_M$ (40 °C) | W | 68 | 188 | 220 | 256 |
| **Permissible rated motor current and starts per hour** | | | | | |
| • For normal starting (CLASS 10) at 40/50 °C | | | | | |
| - Rated motor current $I_M$[2], start-up time 3 s | A | 12.5/11 | 25/23 | 32/29 | 38/34 |
| - Starts per hour[3] | 1/h | 50/50 | 23/23 | 23/23 | 19/19 |
| - Rated motor current $I_M$[2], start-up time 4 s | A | 12.5/11 | 25/23 | 32/29 | 38/34 |
| - Starts per hour[3] | 1/h | 36/36 | 15/15 | 16/16 | 12/12 |
| • For heavy starting (CLASS 20) at 40/50 °C | | | | | |
| - Rated motor current $I_M$[2], start-up time 6 s | A | 10/9 | 21/19 | 27/24 | 31/28 |
| - Starts per hour[3] | 1/h | 47/47 | 21/21 | 20/20 | 18/18 |
| - Rated motor current $I_M$[2], start-up time 8 s | A | 10/9 | 21/19 | 27/24 | 31/28 |
| - Starts per hour[3] | 1/h | 34/34 | 15/15 | 14/14 | 13/13 |

[1] Measurement at 60 °C according to UL/CSA not required.

[2] Current limiting on soft starter set to 300% $I_M$, $T_u$ = 40/50 °C. Maximum adjustable rated motor current $I_M$ dependent on CLASS setting.

[3] For intermittent duty S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency in other mounting position, direct mounting, side-by-side mounting, and implementation of optional auxiliary fan, see Equipment Manual in the chapter "Configuration".

| Type | | 3RW4036 | 3RW4037 | 3RW4038 | 3RW4046 | 3RW4047 |
|---|---|---|---|---|---|---|
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 45/42/39 | 63/58/53 | 72/62.1/60 | 80/73/66 | 106/98/90 |
| **Smallest adjustable rated motor current $I_M$** | | | | | | |
| For the motor overload protection | A | 23 | 26 | 35 | 43 | 46 |
| **Power loss** | | | | | | |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 6 | 12 | 15 | 12 | 21 |
| • During starting with current limiting set to 300% $I_M$ (40 °C) | W | 316 | 444 | 500 | 576 | 768 |
| **Permissible rated motor current and starts per hour** | | | | | | |
| • For normal starting (CLASS 10) at 40/50 °C | | | | | | |
| - Rated motor current $I_M$[2], start-up time 3 s | A | 45/42 | 63/58 | 72/62 | 80/73 | 106/98 |
| - Starts per hour[3] | 1/h | 38/38 | 23/23 | 22/22 | 22/22 | 15/15 |
| - Rated motor current $I_M$[2], start-up time 4 s | A | 45/42 | 63/58 | 72/62 | 80/73 | 106/98 |
| - Starts per hour[3] | 1/h | 26/26 | 15/15 | 15/15 | 15/15 | 10/10 |
| • For heavy starting (CLASS 20) at 40/50 °C | | | | | | |
| - Rated motor current $I_M$[2], start-up time 6 s | A | 38/34 | 46/42 | 50/46 | 64/58 | 77/70 |
| - Starts per hour[3] | 1/h | 30/30 | 31/31 | 34/34 | 23/23 | 23/23 |
| - Rated motor current $I_M$[2], start-up time 8 s | A | 38/34 | 46/42 | 50/46 | 64/58 | 77/70 |
| - Starts per hour[3] | 1/h | 21/21 | 22/22 | 24/24 | 16/16 | 16/16 |

[1] Measurement at 60 °C according to UL/CSA not required.

[2] Current limiting on soft starter set to 300% $I_M$, $T_u$ = 40/50 °C. Maximum adjustable rated motor current $I_M$ dependent on CLASS setting.

[3] For intermittent duty S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency in other mounting position, direct mounting, side-by-side mounting, and implementation of optional auxiliary fan, see Equipment Manual in the chapter "Configuration".

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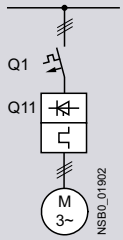
***Motor feeders according to IEC with 3RV2 motor starter protectors (without semiconductor protection)***

Type of coordination "1", CLASS 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters | Motor starter protectors | | | |
|---|---|---|---|---|
| | for 400 V systems | | for 500 V systems | |
| Q11 | Q1 | $I_q$ | Q1 | $I_q$ |
| Type | Type | kA | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | |
| **3RW4024** | 3RV2021-4AA10 | 55 | 3RV2021-4AA10 | 10 |
| **3RW4026** | 3RV2021-4DA10 | 55 | 3RV2021-4DA10 | 10 |
| **3RW4027** | 3RV2021-4EA10 | 55 | 3RV2021-4EA10 | 10 |
| **3RW4028** | 3RV2021-4FA10 | 55 | 3RV2021-4FA10 | 10 |
| **3RW4036** | 3RV2031-4WA10 | 10 | 3RV2031-4WA10 | 10 |
| **3RW4037** | 3RV2031-4JA10 | 10 | 3RV2031-4JA10 | 5 |
| **3RW4038** | 3RV2031-4KA10 | 10 | 3RV2031-4KA10 | 5 |
| **3RW4046** | 3RV2041-4RA10 | 11 | 3RV2041-4YA10 | 5 |
| **3RW4047** | 3RV2041-4MA10 | 11 | 3RV2041-4MA10 | 5 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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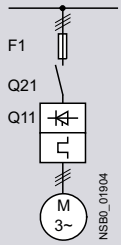
***Motor feeders according to IEC with 3NA3 fuses***

gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** | **Line contactor (optional)** | | |
|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 400 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F1 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | | |
| **3RW4024** | 3NA3820-6 | 3RT2025 | 3RT2025/ 3RT2018 (in size S00) | 3RT2025 |
| **3RW4026** | 3NA3822-6 | 3RT2026 | 3RT2027 | 3RT2037 |
| **3RW4027** | 3NA3824-6 | 3RT2027 | 3RT2028 | 3RT2037 |
| **3RW4028** | 3NA3824-6 | 3RT2028 | 3RT2035 | 3RT2037 |
| **3RW4036** | 3NA3130-6 | 3RT2036 | 3RT2036 | 3RT2038 |
| **3RW4037** | 3NA3132-6 | 3RT2037 | 3RT2037 | 3RT2046 |
| **3RW4038** | 3NA3132-6 | 3RT2038 | 3RT2038 | 3RT2046 |
| **3RW4046** | 3NA3136-6 | 3RT2045 | 3RT2045 | 3RT2047 |
| **3RW4047** | 3NA3136-6 | 3RT2047 | 3RT2047 | 3RT1054 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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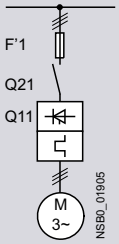
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gR/gS class fuse** | **Line contactor (optional)** | | |
|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 400 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F'1 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | |
| **3RW4024** | 3NE1814-0 | 3RT2025 | 3RT2025/ 3RT2018 (in size S00) | 3RT2025 |
| **3RW4026** | 3NE1803-0 | 3RT2026 | 3RT2027 | 3RT2037 |
| **3RW4027** | 3NE1020-2 | 3RT2027 | 3RT2028 | 3RT2037 |
| **3RW4028** | 3NE1020-2 | 3RT2028 | 3RT2035 | 3RT2037 |
| **3RW4036** | 3NE1020-2 | 3RT2036 | 3RT2036 | 3RT2038 |
| **3RW4037** | 3NE1820-0 | 3RT2037 | 3RT2037 | 3RT2046 |
| **3RW4038** | 3NE1820-0 | 3RT2038 | 3RT2038 | 3RT2046 |
| **3RW4046** | 3NE1021-0 | 3RT2045 | 3RT2045 | 3RT2047 |
| **3RW4047** | 3NE1022-0 | 3RT2047 | 3RT2047 | 3RT1054 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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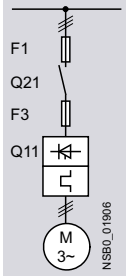
***Motor feeders according to IEC with 3NE8/3NE4/3NE3/3NC fuses***

aR class partial-range fuses for semiconductor protection

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** | **aR class fuse** | | | **Cylindrical fuse** | **Line contactor (optional)** | | |
|---|---|---|---|---|---|---|---|---|
| | for systems up to 600 V | for systems up to 600 V | for systems up to 600 V | for systems up to 600 V | for systems up to 480 V | for systems up to 400 V | for systems up to 480 V | for systems up to 600 V |
| Q11 | F1 | F3 | F3 | F3 | F3 | Q21 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | | | | | |
| **3RW4024** | 3NA3820-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2240 | 3RT2025 | 3RT2025/ 3RT2018 (in size S00) | 3RT2025 |
| **3RW4026** | 3NA3822-6 | -- | 3NE4102 | 3NE8017-1 | 3NC2263 | 3RT2026 | 3RT2027 | 3RT2037 |
| **3RW4027** | 3NA3824-6 | -- | 3NE4118 | 3NE8018-1 | 3NC2280 | 3RT2027 | 3RT2028 | 3RT2037 |
| **3RW4028** | 3NA3824-6 | -- | 3NE4118 | 3NE8020-1 | 3NC2280 | 3RT2028 | 3RT2035 | 3RT2037 |
| **3RW4036** | 3NA3130-6 | -- | 3NE4120 | 3NE8020-1 | 3NC2280 | 3RT2036 | 3RT2036 | 3RT2038 |
| **3RW4037** | 3NA3132-6 | -- | 3NE4121 | 3NE8021-1 | -- | 3RT2037 | 3RT2037 | 3RT2046 |
| **3RW4038** | 3NA3132-6 | 3NE3221 | -- | 3NE8022-1 | -- | 3RT2038 | 3RT2038 | 3RT2046 |
| **3RW4046** | 3NA3136-6 | 3NE3222 | -- | 3NE8022-1 | -- | 3RT2045 | 3RT2045 | 3RT2047 |
| **3RW4047** | 3NA3136-6 | 3NE3224 | -- | 3NE8024-1 | -- | 3RT2047 | 3RT2047 | 3RT1054 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For CLASS 10 applications, as an alternative to the gG class full-range fuses for cable and line protection 3NA3 (F1), 3RV2 motor starter protectors can also be used, possibly with reduced short-circuit breaking capacity (see page 6/88). In these cases, optional line contactors can be dispensed with.

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## Selection and ordering data

***For normal starting (CLASS 10)***

3RW402.

3RW403.

3RW404.

| 3RW ambient temperature 40 °C<br>Rated values of three-phase motors | | | | 3RW ambient temperature 50 °C<br>Rated values of three-phase motors | | | | | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ | Rating at operational voltage $U_e$ 230 V | 400 V | 500 V | Operational current $I_e$ | Rating at operational voltage $U_e$ 200 V | 230 V | 460 V | 575 V | | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | | |
| **Rated operational voltage $U_e$ 200 ... 480 V** | | | | | | | | | | | | | | |
| 12.5 | 3 | **5.5** | -- | 11 | 3 | 3 | **7.5** | -- | **S0** | **3RW4024-□BB□4** | | 1 | 1 unit | 42G |
| 25 | 5.5 | **11** | -- | 23 | 5 | 5 | **15** | -- | **S0** | **3RW4026-□BB□4** | | 1 | 1 unit | 42G |
| 32 | 7.5 | **15** | -- | 29 | 7.5 | 7.5 | **20** | -- | **S0** | **3RW4027-□BB□4** | | 1 | 1 unit | 42G |
| 38 | 11 | **18.5** | -- | 34 | 10 | 10 | **25** | -- | **S0** | **3RW4028-□BB□4** | | 1 | 1 unit | 42G |
| 45 | 11 | **22** | -- | 42 | 10 | 15 | **30** | -- | **S2** | **3RW4036-□BB□4** | | 1 | 1 unit | 42G |
| 63 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **S2** | **3RW4037-□BB□4** | | 1 | 1 unit | 42G |
| 72 | 22 | **37** | -- | 62 | 20 | 20 | **40** | -- | **S2** | **3RW4038-□BB□4** | | 1 | 1 unit | 42G |
| 80 | 22 | **45** | -- | 73 | 20 | 25 | **50** | -- | **S3** | **3RW4046-□BB□4** | | 1 | 1 unit | 42G |
| 106 | 30 | **55** | -- | 98 | 30 | 30 | **75** | -- | **S3** | **3RW4047-□BB□4** | | 1 | 1 unit | 42G |
| **Rated operational voltage $U_e$ 400 ... 600 V** | | | | | | | | | | | | | | |
| 12.5 | -- | 5.5 | **7.5** | 11 | -- | -- | 7.5 | **10** | **S0** | **3RW4024-□BB□5** | | 1 | 1 unit | 42G |
| 25 | -- | 11 | **15** | 23 | -- | -- | 15 | **20** | **S0** | **3RW4026-□BB□5** | | 1 | 1 unit | 42G |
| 32 | -- | 15 | **18.5** | 29 | -- | -- | 20 | **25** | **S0** | **3RW4027-□BB□5** | | 1 | 1 unit | 42G |
| 38 | -- | 18.5 | **22** | 34 | -- | -- | 25 | **30** | **S0** | **3RW4028-□BB□5** | | 1 | 1 unit | 42G |
| 45 | -- | 22 | **30** | 42 | -- | -- | 30 | **40** | **S2** | **3RW4036-□BB□5** | | 1 | 1 unit | 42G |
| 63 | -- | 30 | **37** | 58 | -- | -- | 40 | **50** | **S2** | **3RW4037-□BB□5** | | 1 | 1 unit | 42G |
| 72 | -- | 37 | **45** | 62 | -- | -- | 40 | **60** | **S2** | **3RW4038-□BB□5** | | 1 | 1 unit | 42G |
| 80 | -- | 45 | **55** | 73 | -- | -- | 50 | **60** | **S3** | **3RW4046-□BB□5** | | 1 | 1 unit | 42G |
| 106 | -- | 55 | **75** | 98 | -- | -- | 75 | **75** | **S3** | **3RW4047-□BB□5** | | 1 | 1 unit | 42G |

**Article number supplement for connection types**

- Screw terminals
- Spring-loaded terminals[1)]

**Control supply voltage**

- 24 V AC/DC
- 110 … 230 V AC/DC

1 2

0 1

[1)] Main connection from size S2: screw terminals.

Note:

For the constraints for the motor outputs specified here,
see page 6/8.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***For normal starting (CLASS 10)***

3RW402.

3RW403.

3RW404.

| 3RW ambient temperature 40 °C<br>Rated values of three-phase motors<br>Operational current $I_e$ | Rating at operational voltage $U_e$<br>230 V | 400 V | 500 V | 3RW ambient temperature 50 °C<br>Rated values of three-phase motors<br>Operational current $I_e$ | Rating at operational voltage $U_e$<br>200 V | 230 V | 460 V | 575 V | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | | |
| **Rated operational voltage $U_e$ 200 ... 480 V, with thermistor motor protection, rated control supply voltage $U_s$ 24 V AC/DC** | | | | | | | | | | | | | | |
| 12.5 | 3 | **5.5** | -- | 11 | 3 | 3 | **7.5** | -- | **S0** | **3RW4024-□TB04** | | 1 | 1 unit | 42G |
| 25 | 5.5 | **11** | -- | 23 | 5 | 5 | **15** | -- | **S0** | **3RW4026-□TB04** | | 1 | 1 unit | 42G |
| 32 | 7.5 | **15** | -- | 29 | 7.5 | 7.5 | **20** | -- | **S0** | **3RW4027-□TB04** | | 1 | 1 unit | 42G |
| 38 | 11 | **18.5** | -- | 34 | 10 | 10 | **25** | -- | **S0** | **3RW4028-□TB04** | | 1 | 1 unit | 42G |
| 45 | 11 | **22** | -- | 42 | 10 | 15 | **30** | -- | **S2** | **3RW4036-□TB04** | | 1 | 1 unit | 42G |
| 63 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **S2** | **3RW4037-□TB04** | | 1 | 1 unit | 42G |
| 72 | 22 | **37** | -- | 62 | 20 | 20 | **40** | -- | **S2** | **3RW4038-□TB04** | | 1 | 1 unit | 42G |
| 80 | 22 | **45** | -- | 73 | 20 | 25 | **50** | -- | **S3** | **3RW4046-□TB04** | | 1 | 1 unit | 42G |
| 106 | 30 | **55** | -- | 98 | 30 | 30 | **75** | -- | **S3** | **3RW4047-□TB04** | | 1 | 1 unit | 42G |
| **Rated operational voltage $U_e$ 400 ... 600 V, with thermistor motor protection, rated control supply voltage $U_s$ 24 V AC/DC** | | | | | | | | | | | | | | |
| 12.5 | -- | 5.5 | **7.5** | 11 | -- | -- | 7.5 | **10** | **S0** | **3RW4024-□TB05** | | 1 | 1 unit | 42G |
| 25 | -- | 11 | **15** | 23 | -- | -- | 15 | **20** | **S0** | **3RW4026-□TB05** | | 1 | 1 unit | 42G |
| 32 | -- | 15 | **18.5** | 29 | -- | -- | 20 | **25** | **S0** | **3RW4027-□TB05** | | 1 | 1 unit | 42G |
| 38 | -- | 18.5 | **22** | 34 | -- | -- | 25 | **30** | **S0** | **3RW4028-□TB05** | | 1 | 1 unit | 42G |
| 45 | -- | 22 | **30** | 42 | -- | -- | 30 | **40** | **S2** | **3RW4036-□TB05** | | 1 | 1 unit | 42G |
| 63 | -- | 30 | **37** | 58 | -- | -- | 40 | **50** | **S2** | **3RW4037-□TB05** | | 1 | 1 unit | 42G |
| 72 | -- | 37 | **45** | 62 | -- | -- | 40 | **60** | **S2** | **3RW4038-□TB05** | | 1 | 1 unit | 42G |
| 80 | -- | 45 | **55** | 73 | -- | -- | 50 | **60** | **S3** | **3RW4046-□TB05** | | 1 | 1 unit | 42G |
| 106 | -- | 55 | **75** | 98 | -- | -- | 75 | **75** | **S3** | **3RW4047-□TB05** | | 1 | 1 unit | 42G |

**Article number supplement for connection types**

- Screw terminals
- Spring-loaded terminals[1)]

1 2

[1)] Main connection from size S2: screw terminals.

Note:

For the constraints for the motor outputs specified here, see page 6/8.

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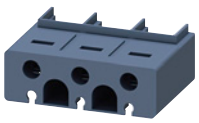
## Selection and ordering data

| For soft starters | | Conductor cross-section | | | Tightening torque | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Solid or stranded | Finely stranded with end sleeve | AWG cables, solid or stranded | | | | | | |
| Type | Size | mm² | mm² | AWG | Nm | | | | | |
| **3-phase infeed terminals** | | | | | | | | | | |
| 3RW402. | **S0** | 2.5 ... 25 | 2.5 ... 16 | 10 ... 4 | 3 ... 4 | **3RV2925-5AB** | | 1 | 1 unit | 41E |

3RV2925-5AB

| For soft starters | | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Type | Size | | | | | | |
| **Auxiliary conductor terminals** | | | | | | | |
| **Auxiliary conductor terminals, 3-pole** | | | | | | | |
| 3RW404. | **S3** | For connection of auxiliary and control cables (0.5 ... 2.5 mm²) to the main conductor terminals | **3RT2946-4F** | | 1 | 1 unit | 41B |
| **Covers for soft starters** | | | | | | | |
| **Terminal covers for box terminals** | | | | | | | |
| 3RW403. | **S2** | Additional touch protection to be fitted at the box terminals (two units required per device) | **3RT2936-4EA2** | | 1 | 1 unit | 41B |
| 3RW404. | **S3** | | **3RT2946-4EA2** | | 1 | 1 unit | 41B |
| **Terminal covers for cable lugs and busbar connections** | | | | | | | |
| 3RW404. | **S3** | For complying with the voltage clearances and as touch protection if box terminal is removed (two units required per device) | **3RT1946-4EA1** | | 1 | 1 unit | 41B |
| **Sealing covers** | | | | | | | |
| 3RW402. to 3RW404. | **S0, S2, S3** | -- | **3RW4900-0PB10** | | 1 | 1 unit | 42G |


3RT2946-4F


3RT2936-4EA2

3RT1946-4EA1

3RW4900-0PB10



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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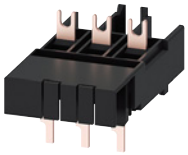
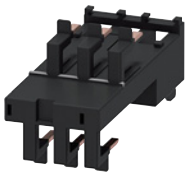
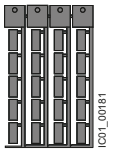
| | For motor starter protectors Size | For soft starters Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **DIN-rail adapters** | | | | | | | | |
| 3RA2932-1CA00 | **S2** | **S2** | For mechanical fixing of motor starter protector and soft starter; for snapping onto DIN rail or for screw fixing<br>**Single-unit packaging** | **3RA2932-1CA00** | | 1 | 1 unit | 41B |

| | For soft starters Type | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Fans (to increase switching frequency and for device mounting in positions different to the standard position)** | | | | | | | |
| 3RW49..-8VB00 | 3RW402. | **S0** | **3RW4928-8VB00** | | 1 | 1 unit | 42G |
| | 3RW403., 3RW404. | **S2, S3** | **3RW4947-8VB00** | | 1 | 1 unit | 42G |

| | For soft starters Type | Size | Motor starter protectors Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Link modules to motor starter protectors**[1] | | | | | | | | |
|  3RA2921-1BA00 | • Screw terminals | | | **Screw terminals** | | | | |
| | 3RW402. | **S0** | **S00/S0** | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| | 3RW4036 | **S2** | **S2** | **3RA2931-1AA00** | | 1 | 1 unit | 41B |
| | 3RW404. | **S3** | **S3** | **3RA1941-1AA00** | | 1 | 1 unit | 41B |
| | • Spring-loaded terminals | | | **Spring-loaded terminals** | | | | |
|  3RA2921-2GA00 | 3RW402. | **S0** | **S0** | **3RA2921-2GA00** | | 1 | 1 unit | 41B |

[1] Can be used in size S0 up to maximum 32 A.
Can be used in size S2 up to maximum 65 A in combination with 3RA2932-1CA00 DIN-rail adapter (specially for soft starters).
Can be used in size S3 up to maximum 64 A and only with mounting plate.

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Tools for opening spring-loaded terminals in sizes S00 and S0** | | | | | | |
| 3RA2908-1A | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals<br>Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **Spring-loaded terminals**<br>**3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1]<br>For SIRIUS devices<br>20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH
(see page 16/18).

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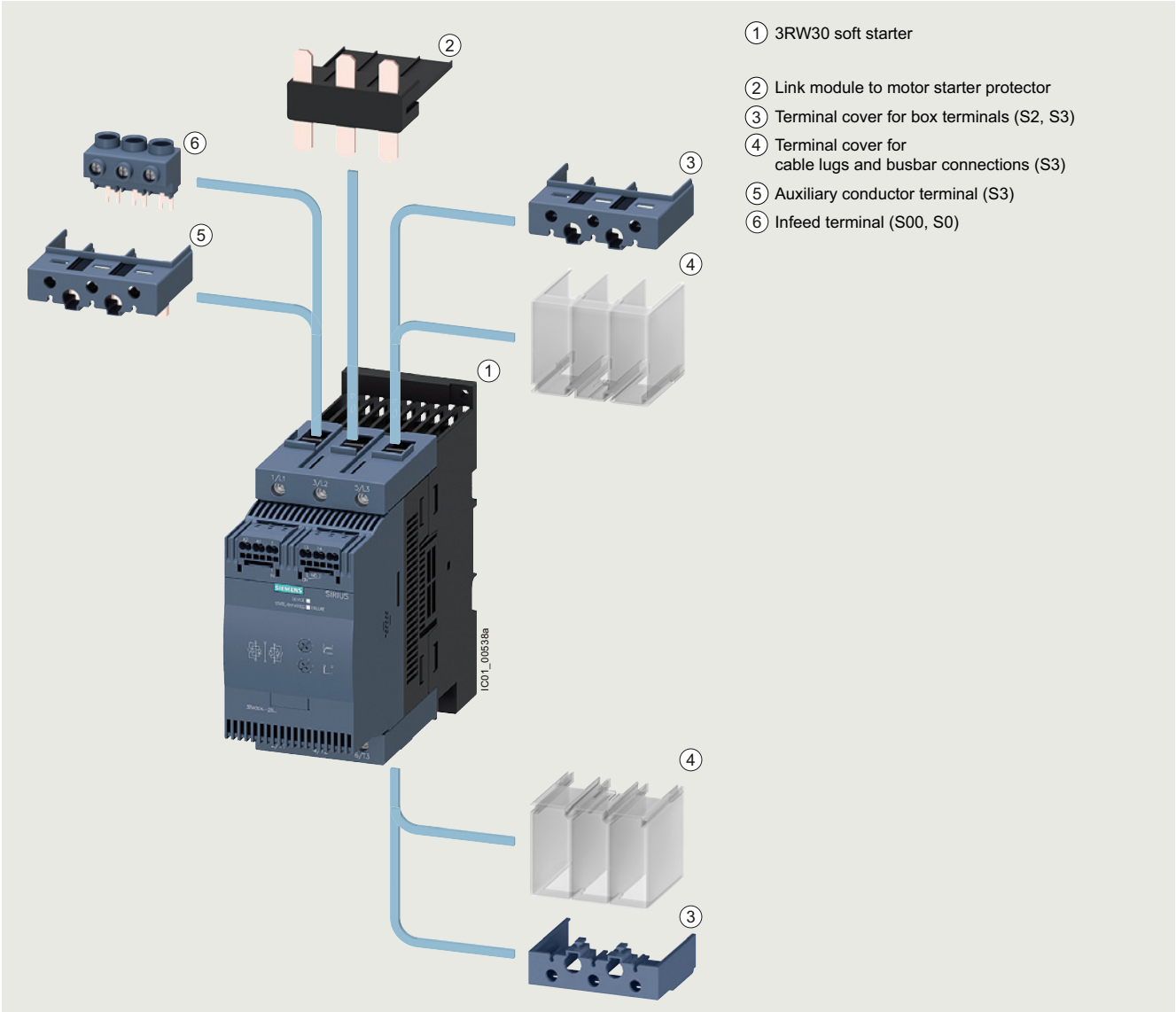
## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter<br>Industry Mall, see www.siemens.com/product?3RW30 | TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=3rw30<br>Simulation Tool for Soft Starters (STS), see page 6/9 or https://support.industry.siemens.com/cs/ww/en/view/101494917<br>Conversion tool, see www.siemens.com/conversion-tool |

SIRIUS 3RW30 soft starter

The SIRIUS 3RW30 Basic Performance soft starters are suitable for soft starting of three-phase asynchronous motors.

Thanks to 2-phase control, not only is the current kept at minimum values in all three phases throughout the entire starting time, but disturbing direct current components are also eliminated. This not only enables the 2-phase starting of motors up to 55 kW (at 400 V) but also avoids the current and torque peaks which occur e.g. with star-delta (wye-delta) starters.




1. 3RW30 soft starter
2. Link module to motor starter protector
3. Terminal cover for box terminals (S2, S3)
4. Terminal cover for cable lugs and busbar connections (S3)
5. Auxiliary conductor terminal (S3)
6. Infeed terminal (S00, S0)

SIRIUS 3RW30 Basic Performance soft starter with accessories (see page 6/104)

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## Benefits

3RW301.

3RW302.

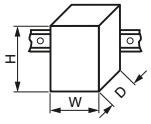
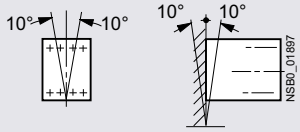
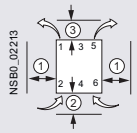
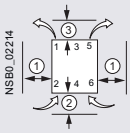
3RW303.

3RW304.

| Product characteristics/function | Performance features/benefits |
|---|---|
| Small and compact design | Space-saving, clearly arranged control panel layout |
| Parameterization using potentiometers | Simple and fast commissioning |
| Integrated in the SIRIUS modular system | Link modules to motor starter protectors |
| Hybrid switching technology and 2-phase motor control | Minimum power loss and optimized motor control by avoiding DC components |

## Technical specifications

| More information | |
|---|---|
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/38752095<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16213/faq | Catalog LV 10, see www.siemens.com/lowvoltage/lv10 |

| Type | | | 3RW301. | 3RW302. | 3RW303. | 3RW304. |
|---|---|---|---|---|---|---|
| **Mechanics and environment** | | | | | | |
| **Mounting dimensions (W x H x D)**<br>• Screw terminals<br>• Spring-loaded terminals |  | mm<br>mm | 45 x 95 x 151<br>45 x 117 x 151 | 45 x 125 x 151<br>45 x 150 x 151 | 55 x 144 x 168<br>55 x 144 x 168 | 70 x 160 x 186<br>70 x 160 x 186 |
| **Permissible ambient temperature**<br>During operation<br>During storage | | °C<br>°C | -25 ... +60 (derating from +40)<br>-40 ... +80 | | | |
| **Weight** | | kg | 0.58 | 0.69 | 1.20 | 1.71 |
| **Permissible mounting position**[1]<br>(auxiliary fan not possible) |  | | | | | |
| **Installation type**[1] | Stand-alone installation | |  ① ≥ 15 mm (≥ 0.59 in) ② ≥ 40 mm ( ≥ 1.56 in) ③ ≥ 60 mm (≥ 2.36 in) | |  ① ≥ 30 mm (≥ 1.18 in) ② ≥ 40 mm ( ≥ 1.56 in) ③ ≥ 60 mm (≥ 2.36 in) | |
| **Permissible installation altitude** | | m | 5 000<br>(Derating from 1 000, see characteristic curve on page 6/9) | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | | | |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | | | |

[1] In the case of deviations, please observe derating, see Equipment Manual in the chapter "Configuration".

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| Type | Terminal | | 3RW301., 3RW302. | | 3RW303., 3RW304. | |
|---|---|---|---|---|---|---|
| **Control electronics** | | | | | | |
| **Rated values** | | | | | | |
| Rated control supply voltage | A1/A2 | V | 24 | 110 ... 230 | 24 | 110 ... 230 |
| • Tolerance | | % | ± 20 | -15/+10 | ± 20 | -15/+10 |
| Rated frequency | | Hz | 50/60 | | | |
| • Tolerance | | % | ± 10 | | | |

| Type | | 3RW301. | 3RW302. | 3RW303. | 3RW304. |
|---|---|---|---|---|---|
| **Power electronics** | | | | | |
| **Rated operational voltage** | V AC | 200 ... 480 | | | |
| Tolerance | % | -15/+10 | | | |
| **Rated frequency** | Hz | 50/60 | | | |
| Tolerance | % | ± 10 | | | |
| **Uninterrupted duty** at 40 °C (% of $I_e$) | % | 115 | | | |
| **Minimum load** (% of $I_e$) | % | 10 (at least 1 A) | | | |
| **Maximum cable length** between soft starter and motor | m | 300 | | | |

| Type | | 3RW3013 | 3RW3014 | 3RW3016 | 3RW3017 | 3RW3018 |
|---|---|---|---|---|---|---|
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 3.6/3.3/3 | 6.5/6/5.5 | 9/8/7 | 12.5/12/11 | 17.6/17/14 |
| **Power loss** | | | | | | |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 0.25 | 0.5 | 1 | 2 | 4 |
| • During starting with 300% $I_M$ (40 °C) | W | 24 | 52 | 80 | 80 | 116 |
| **Permissible rated motor current and starts per hour** | | | | | | |
| • For normal starting (CLASS 10) at 40/50 °C | | | | | | |
| - Rated motor current $I_M$[2], start-up time 3 s | A | 3.6/3.3 | 6.5/6.0 | 9/8 | 12.5/12.0 | 17.6/17.0 |
| - Starts per hour[3] | 1/h | 200/150 | 87/60 | 50/50 | 85/70 | 62/46 |
| - Rated motor current $I_M$[2], start-up time 4 s | A | 3.6/3.3 | 6.5/6.0 | 9/8 | 12.5/12.0 | 17.6/17.0 |
| - Starts per hour[3] | 1/h | 150/100 | 64/46 | 35/35 | 62/47 | 45/32 |

1) Measurement at 60 °C according to UL/CSA not required.
2) At 300% $I_M$, $T_u$ = 40/50 °C.
3) For intermittent duty S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

| Type | | 3RW3026 | 3RW3027 | 3RW3028 |
|---|---|---|---|---|
| **Power electronics** | | | | |
| **Load rating with rated operational current $I_e$** | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 25.3/23/21 | 32.2/29/26 | 38/34/31 |
| **Power loss** | | | | |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 8 | 13 | 19 |
| • During starting with 300% $I_M$ (40 °C) | W | 188 | 220 | 256 |
| **Permissible rated motor current and starts per hour** | | | | |
| • For normal starting (CLASS 10) at 40/50 °C | | | | |
| - Rated motor current $I_M$[2], start-up time 3 s | A | 25/23 | 32/29 | 38/34 |
| - Starts per hour[3] | 1/h | 23/23 | 23/23 | 19/19 |
| - Rated motor current $I_M$[2], start-up time 4 s | A | 25/23 | 32/29 | 38/34 |
| - Starts per hour[3] | 1/h | 15/15 | 16/16 | 12/12 |

1) Measurement at 60 °C according to UL/CSA not required.
2) At 300% $I_M$, $T_u$ = 40/50 °C.
3) For intermittent duty S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode. Factors for permissible switching frequency with deviating mounting position, direct mounting, side-by-side mounting, see Equipment Manual in the chapter "Configuration".

| Type | | 3RW3036 | 3RW3037 | 3RW3038 | 3RW3046 | 3RW3047 |
|---|---|---|---|---|---|---|
| **Power electronics** | | | | | | |
| **Load rating with rated operational current $I_e$** | | | | | | |
| • According to IEC and UL/CSA[1], individual mounting at 40/50/60 °C, AC-53a | A | 45/42/39 | 65/58/53 | 72/62.1/60 | 80/73/66 | 106/98/90 |
| **Power loss** | | | | | | |
| • In operation after completed starting with uninterrupted rated operational current (40 °C) approx. | W | 6 | 12 | 15 | 12 | 21 |
| • During starting with 300% $I_M$ (40 °C) | W | 316 | 444 | 500 | 576 | 768 |
| **Permissible rated motor current and starts per hour** | | | | | | |
| • For normal starting (CLASS 10) at 40/50 °C | | | | | | |
| - Rated motor current $I_M$[2], start-up time 3 s | A | 45/42 | 63/58 | 72/62 | 80/73 | 106/108 |
| - Starts per hour[3] | 1/h | 38/38 | 23/23 | 22/22 | 22/22 | 15/15 |
| - Rated motor current $I_M$[2], start-up time 4 s | A | 45/42 | 63/58 | 72/62 | 80/73 | 106/98 |
| - Starts per hour[3] | 1/h | 26/26 | 15/15 | 15/15 | 15/15 | 10/10 |

1) Measurement at 60 °C according to UL/CSA not required.
2) At 300% $I_M$, $T_u$ = 40/50 °C.
3) For intermittent duty S4 with ON period = 30%, $T_u$ = 40/50 °C, stand-alone installation vertical. The quoted switching frequencies do not apply for automatic mode.

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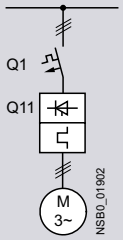
***Motor feeders according to IEC with 3RV2 motor starter protectors (without semiconductor protection)***

Type of coordination "1", CLASS 10,
short-circuit breaking capacity $I_q$ in kA, see table

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **Motor starter protectors** for 400 V systems | |
|---|---|---|
| Q11 | Q1 | $I_q$ |
| Type | Type | kA |
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | |
| **3RW3013** | 3RV2011-1FA10 | 5 |
| **3RW3014** | 3RV2011-1HA10 | 5 |
| **3RW3016** | 3RV2011-1JA10 | 5 |
| **3RW3017** | 3RV2011-1KA10 | 5 |
| **3RW3018** | 3RV2021-4BA10 | 5 |
| **3RW3026** | 3RV2021-4DA10 | 55 |
| **3RW3027** | 3RV2021-4EA10 | 55 |
| **3RW3028** | 3RV2021-4FA10 | 55 |
| **3RW3036** | 3RV2031-4WA10 | 10 |
| **3RW3037** | 3RV2031-4JA10 | 10 |
| **3RW3038** | 3RV2031-4KA10 | 10 |
| **3RW3046** | 3RV2041-4RA10 | 11 |
| **3RW3047** | 3RV2041-4MA10 | 11 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller motor starter protectors/circuit breakers from the same series can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must match the connected three-phase motor, the short-circuit and overload requirements of the application, and the line protection for the cables used.

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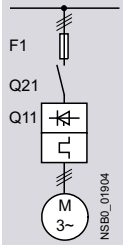
***Motor feeders according to IEC with 3NA3 fuses***

gG class full-range fuses for cable and line protection according to IEC 60269-2, without semiconductor protection

Type of coordination "1",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| Soft starters<br>Q11<br>Type | gG class fuse<br>for systems up to 480 V<br>F1<br>Type | Line contactor (optional)<br>for systems up to 400 V<br>Q21<br>Type | <br>for systems up to 480 V<br>Q21<br>Type |
|---|---|---|---|
| **Type of coordination "1"** ToC 1 | **Standard (inline) circuit** | | |
| **3RW3013** | 3NA3803-6 | 3RT2015 | 3RT2015 |
| **3RW3014** | 3NA3805-6 | 3RT2015 | 3RT2016 |
| **3RW3016** | 3NA3807-6 | 3RT2016 | 3RT2017 |
| **3RW3017** | 3NA3810-6 | 3RT2018 | 3RT2025 |
| **3RW3018** | 3NA3814-6 | 3RT2026 | 3RT2026 |
| **3RW3026** | 3NA3822-6 | 3RT2026 | 3RT2027 |
| **3RW3027** | 3NA3824-6 | 3RT2027 | 3RT2028 |
| **3RW3028** | 3NA3824-6 | 3RT2028 | 3RT2035 |
| **3RW3036** | 3NA3130-6 | 3RT2036 | 3RT2036 |
| **3RW3037** | 3NA3132-6 | 3RT2037 | 3RT2037 |
| **3RW3038** | 3NA3132-6 | 3RT2038 | 3RT2038 |
| **3RW3046** | 3NA3136-6 | 3RT2045 | 3RT2045 |
| **3RW3047** | 3NA3136-6 | 3RT2047 | 3RT2047 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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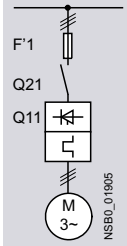
***Motor feeders according to IEC with 3NE1 SITOR fuses***

gR/gS class full-range fuses for semiconductor protection, cable and line protection (gS)

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gR/gS class fuse** | **Line contactor (optional)** | |
|---|---|---|---|
| | for systems up to 480 V | for systems up to 400 V | for systems up to 480 V |
| Q11 | F'1 | Q21 | Q21 |
| Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | |
| **3RW3013** | 3NE1813-0 | 3RT2015 | 3RT2015 |
| **3RW3014** | 3NE1813-0 | 3RT2015 | 3RT2016 |
| **3RW3016** | 3NE1813-0 | 3RT2016 | 3RT2017 |
| **3RW3017** | 3NE1813-0 | 3RT2018 | 3RT2025 |
| **3RW3018** | 3NE1814-0 | 3RT2026 | 3RT2026 |
| **3RW3026** | 3NE1803-0 | 3RT2026 | 3RT2027 |
| **3RW3027** | 3NE1020-2 | 3RT2027 | 3RT2028 |
| **3RW3028** | 3NE1020-2 | 3RT2028 | 3RT2035 |
| **3RW3036** | 3NE1020-2 | 3RT2036 | 3RT2036 |
| **3RW3037** | 3NE1820-0 | 3RT2037 | 3RT2037 |
| **3RW3038** | 3NE1820-0 | 3RT2038 | 3RT2038 |
| **3RW3046** | 3NE1021-0 | 3RT2045 | 3RT2045 |
| **3RW3047** | 3NE1022-0 | 3RT2047 | 3RT2047 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

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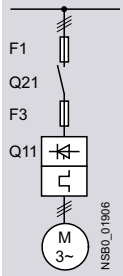
***Motor feeders according to IEC with 3NE8/3NE4/3NE3/3NC fuses***

aR class partial-range fuses for semiconductor protection

Type of coordination "2",
short-circuit breaking capacity $I_q$ = 65 kA

Note:

For general recommendations for constructing motor feeders with soft starters, see page 6/12.




| **Soft starters** | **gG class fuse** | **aR class fuse** | | | **Cylindrical fuse** | **Line contactor (optional)** | |
|---|---|---|---|---|---|---|---|
| | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V | for systems up to 480 V | for systems up to 400 V | for systems up to 480 V |
| Q11 | F1 | F3 | F3 | F3 | F3 | Q21 | Q21 |
| Type | Type | Type | Type | Type | Type | Type | Type |
| **Type of coordination "2"** ToC 2 | **Standard (inline) circuit** | | | | | | |
| **3RW3013** | 3NA3803-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2220 | 3RT2015 | 3RT2015 |
| **3RW3014** | 3NA3805-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2220 | 3RT2015 | 3RT2016 |
| **3RW3016** | 3NA3807-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2220 | 3RT2016 | 3RT2017 |
| **3RW3017** | 3NA3810-6 | -- | 3NE4101 | 3NE8015-1 | 3NC2250 | 3RT2018 | 3RT2025 |
| **3RW3018** | 3NA3814-6 | -- | 3NE4101 | 3NE8003-1 | 3NC2263 | 3RT2026 | 3RT2026 |
| **3RW3026** | 3NA3822-6 | -- | 3NE4102 | 3NE8017-1 | 3NC2263 | 3RT2026 | 3RT2027 |
| **3RW3027** | 3NA3824-6 | -- | 3NE4118 | 3NE8018-1 | 3NC2280 | 3RT2027 | 3RT2028 |
| **3RW3028** | 3NA3824-6 | -- | 3NE4118 | 3NE8020-1 | 3NC2280 | 3RT2028 | 3RT2035 |
| **3RW3036** | 3NA3130-6 | -- | 3NE4120 | 3NE8020-1 | 3NC2280 | 3RT2036 | 3RT2036 |
| **3RW3037** | 3NA3132-6 | -- | 3NE4121 | 3NE8021-1 | -- | 3RT2037 | 3RT2037 |
| **3RW3038** | 3NA3132-6 | 3NE3221 | -- | 3NE8022-1 | -- | 3RT2038 | 3RT2038 |
| **3RW3046** | 3NA3136-6 | 3NE3222 | -- | 3NE8022-1 | -- | 3RT2045 | 3RT2045 |
| **3RW3047** | 3NA3136-6 | 3NE3224 | -- | 3NE8024-1 | -- | 3RT2047 | 3RT2047 |

Note:

The specified short-circuit breaking capacities $I_q$ in kA are covered by combination tests. Smaller fuses than those specified can be used at any time as smaller ones trip more quickly in the event of a short circuit (unchanged short-circuit breaking capacity) and thus protect the soft starter in any case. The dimensioning of the short-circuit components must, however, be suitable for the connected three-phase motor and the line protection for the cables used.

For CLASS 10 applications, as an alternative to the gG class full-range fuses for cable and line protection 3NA3 (F1), 3RV2 motor starter protectors can also be used, possibly with reduced short-circuit breaking capacity (see page 6/99). In these cases, optional line contactors can be dispensed with.

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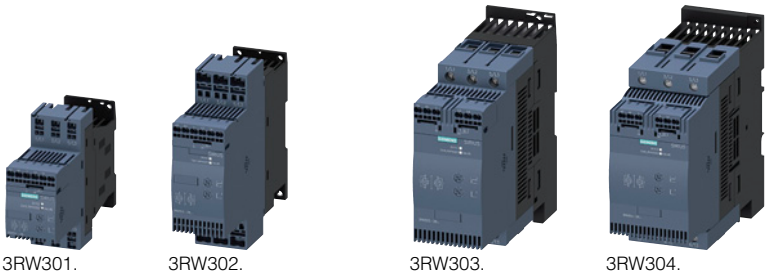
## Selection and ordering data

### *For simple starting conditions*



3RW301. 3RW302. 3RW303. 3RW304.

| 3RW ambient temperature 40 °C<br>Rated values of three-phase motors | | | | 3RW ambient temperature 50 °C<br>Rated values of three-phase motors | | | | | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational current $I_e$ | Rating at operational voltage $U_e$ 230 V | 400 V | 500 V | Operational current $I_e$ | Rating at operational voltage $U_e$ 200 V | 230 V | 460 V | 575 V | | | | | | |
| A | kW | kW | kW | A | hp | hp | hp | hp | | | | | | |
| **Rated operational voltage $U_e$ 200 ... 480 V** | | | | | | | | | | | | | | |
| 3.6 | 0.75 | **1.5** | -- | 3 | 0.5 | 0.5 | **1.5** | -- | **S00** | **3RW3013-□BB□4** | | 1 | 1 unit | 42G |
| 6.5 | 1.5 | **3** | -- | 6 | 1 | 1 | **3** | -- | **S00** | **3RW3014-□BB□4** | | 1 | 1 unit | 42G |
| 9 | 2.2 | **4** | -- | 8 | 2 | 2 | **5** | -- | **S00** | **3RW3016-□BB□4** | | 1 | 1 unit | 42G |
| 12.5 | 3 | **5.5** | -- | 12 | 3 | 3 | **7.5** | -- | **S00** | **3RW3017-□BB□4** | | 1 | 1 unit | 42G |
| 17.6 | 4 | **7.5** | -- | 17 | 3 | 3 | **10** | -- | **S00** | **3RW3018-□BB□4** | | 1 | 1 unit | 42G |
| 25 | 5.5 | **11** | -- | 23 | 5 | 5 | **15** | -- | **S0** | **3RW3026-□BB□4** | | 1 | 1 unit | 42G |
| 32 | 7.5 | **15** | -- | 29 | 7.5 | 7.5 | **20** | -- | **S0** | **3RW3027-□BB□4** | | 1 | 1 unit | 42G |
| 38 | 11 | **18.5** | -- | 34 | 10 | 10 | **25** | -- | **S0** | **3RW3028-□BB□4** | | 1 | 1 unit | 42G |
| 45 | 11 | **22** | -- | 42 | 10 | 15 | **30** | -- | **S2** | **3RW3036-□BB□4** | | 1 | 1 unit | 42G |
| 63 | 18.5 | **30** | -- | 58 | 15 | 20 | **40** | -- | **S2** | **3RW3037-□BB□4** | | 1 | 1 unit | 42G |
| 72 | 22 | **37** | -- | 62 | 20 | 20 | **40** | -- | **S2** | **3RW3038-□BB□4** | | 1 | 1 unit | 42G |
| 80 | 22 | **45** | -- | 73 | 20 | 25 | **50** | -- | **S3** | **3RW3046-□BB□4** | | 1 | 1 unit | 42G |
| 106 | 30 | **55** | -- | 98 | 30 | 30 | **75** | -- | **S3** | **3RW3047-□BB□4** | | 1 | 1 unit | 42G |

**Article number supplement for connection types**

- Screw terminals **1 2**
- Spring-loaded terminals[1] **0 1**

**Control supply voltage $U_s$**

- 24 V AC/DC
- 110 … 230 V AC/DC

[1] Main connection from size S2: screw terminals.

Note:

For the constraints for the motor outputs specified here, see page 6/8.

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## Selection and ordering data

**More information**

Equipment Manual, see
https://support.industry.siemens.com/cs/ww/en/view/38752095

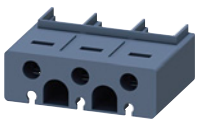
| Conductor cross-section: Solid or stranded | Conductor cross-section: Finely stranded with end sleeve | Conductor cross-section: AWG cables, solid or stranded | Tightening torque | For soft starters | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| mm² | mm² | AWG | Nm | Size | | | | | |
| **3-phase infeed terminals** | | | | | | | | | |
| 2.5 ... 25 | 2.5 ... 16 | 10 ... 4 | 3 ... 4 | S00 (3RW301.), S0 (3RW302.) | **3RV2925-5AB** | | 1 | 1 unit | 41E |

3RV2925-5AB

| For soft starters: Type | For soft starters: Size | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Auxiliary conductor terminals** | | | | | | | |
| | | **Auxiliary conductor terminals, 3-pole** | | | | | |
| 3RW304. | **S3** | | **3RT2946-4F** | | 1 | 1 unit | 41B |

3RT2946-4F

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Covers for soft starters** | | | | | | | |
| | | **Terminal covers for box terminals**<br>Additional touch protection to be fitted at the box terminals (two units required per device) | | | | | |
| 3RW303. | **S2** | | **3RT2936-4EA2** | | 1 | 1 unit | 41B |
| 3RW304. | **S3** | | **3RT2946-4EA2** | | 1 | 1 unit | 41B |
| | | **Terminal covers for cable lugs and busbar connections**<br>For complying with the voltage clearances and as touch protection if box terminal is removed (two units required per device) | | | | | |
| 3RW304. | **S3** | | **3RT1946-4EA1** | | 1 | 1 unit | 41B |


3RT2936-4EA2

3RT1946-4EA1

| For motor starter protectors: Size | For soft starters: Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Mounting rails for mounting contactors for the customer assembly of 3RA21 load feeders with busbar adapters for 60 mm systems** | | | | | | | |
| | | For the discrete configuration of direct-on-line starters, an additional mounting rail is needed for the contactor in addition to the existing mounting rail on the busbar adapter for the motor starter protector. | | | | | |
| -- | **S0** | For pushing onto the device adapter, including fixing screws | **8US1998-7CB45** | | 1 | 10 units | 14O |

8US1998-7CB45

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **DIN-rail adapters** | | | | | | | |
| | | For mechanical fixing of motor starter protector and soft starter; for snapping onto DIN rail or for screw fixing | | | | | |
| **S2** | **S2** | **Single-unit packaging** | **3RA2932-1CA00** | | 1 | 1 unit | 41B |

3RA2932-1CA00



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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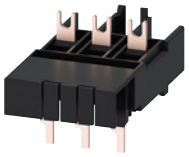
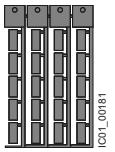
| For soft starters Type | Size | Motor starter protectors Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Link modules to motor starter protectors**[1] | | | | | | | |
|  3RA2921-1BA00 | | | | | | | |
| • Screw terminals | | | **Screw terminals** | | | | |
| 3RW301. | **S00** | **S00** | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| 3RW302. | **S0** | **S00/S0** | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| 3RW3036 | **S2** | **S2** | **3RA2931-1AA00** | | 1 | 1 unit | 41B |
| 3RW304. | **S3** | **S3** | **3RA1941-1AA00** | | 1 | 1 unit | 41B |
| 3RA2921-2GA00 | | | | | | | |
| • Spring-loaded terminals | | | **Spring-loaded terminals** | | | | |
| 3RW301. | **S00** | **S00** | **3RA2911-2GA00** | | 1 | 1 unit | 41B |
| 3RW302. | **S0** | **S0** | **3RA2921-2GA00** | | 1 | 1 unit | 41B |

[1] Can be used in size S0 up to maximum 32 A.
Can be used in size S2 up to maximum 65 A in combination with 3RA2932-1CA00 DIN-rail adapter (specially for soft starters).
Can be used in size S3 up to maximum 64 A and only on a mounting plate.

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Tools for opening spring-loaded terminals in sizes S00 and S0** | | | | | |
| 3RA2908-1A | | | | | |
| **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals** | | | | |
| Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | |
|  3RT2900-1SB20 | | | | | |
| **Unit labeling plates**[1]<br>For SIRIUS devices | | | | | |
| 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH
(see page 16/18).

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## For 3RW55

### Overview

**More information**

Homepage, see www.siemens.com/sirius-soft-starter
Industry Mall, see www.siemens.com/product?3RW
Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404

### Selection and ordering data

| Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Power semiconductor modules** | | | | | | | |
| **Power semiconductor module** | 3RW5524-.HA.4 (3x) | 480 V, 47 A | **3RW5952-0SF04** | | 1 | 1 unit | 42S |
| | 3RW5525-.HA.4 (3x), 3RW5526-.HA.4 (3x) | 480 V, 77 A | **3RW5952-0SH04** | | 1 | 1 unit | 42S |
| | 3RW5527-.HA.4 (3x) | 480 V, 93 A | **3RW5952-0SJ04** | | 1 | 1 unit | 42S |
| | 3RW5534-.HA.4 (3x), 3RW5535-.HA.4 (3x) | 480 V, 143 A | **3RW5953-0SL04** | | 1 | 1 unit | 42S |
| | 3RW5536-.HA.4 (3x) | 480 V, 171 A | **3RW5953-0SM04** | | 1 | 1 unit | 42S |
| | 3RW5543-.HA.4 (3x) | 480 V, 210 A | **3RW5954-0SN04** | | 1 | 1 unit | 42S |
| | 3RW5544-.HA.4 (3x) | 480 V, 250 A | **3RW5954-0SP04** | | 1 | 1 unit | 42S |
| | 3RW5545-.HA.4 (3x), 3RW5546-.HA.4 (3x) | 480 V, 370 A | **3RW5954-0SR04** | | 1 | 1 unit | 42S |
| | 3RW5547-.HA.4 (3x), 3RW5548-.HA.4 (3x) | 480 V, 570 A | **3RW5954-0ST04** | | 1 | 1 unit | 42S |
| | 3RW5552-.HA.4 (3x) | 480 V, 630 A | **3RW5955-0SU04** | | 1 | 1 unit | 42S |
| | 3RW5553-.HA.4 (3x) | 480 V, 720 A | **3RW5955-0SV04** | | 1 | 1 unit | 42S |
| | 3RW5554-.HA.4 (3x) | 480 V, 840 A | **3RW5955-0SW04** | | 1 | 1 unit | 42S |
| | 3RW5556-.HA.4 (3x) | 480 V, 1 100 A | **3RW5955-0SX04** | | 1 | 1 unit | 42S |
| | 3RW5558-.HA.4 (3x) | 480 V, 1 280 A | **3RW5955-0SY04** | | 1 | 1 unit | 42S |
| | 3RW5521-.HA.6 (3x), 3RW5524-.HA.6 (3x) | 690 V, 47 A | **3RW5952-0SF06** | | 1 | 1 unit | 42S |
| | 3RW5525-.HA.6 (3x), 3RW5526-.HA.6 (3x) | 690 V, 77 A | **3RW5952-0SH06** | | 1 | 1 unit | 42S |
| | 3RW5527-.HA.6 (3x) | 690 V, 93 A | **3RW5952-0SJ06** | | 1 | 1 unit | 42S |
| | 3RW5534-.HA.6 (3x), 3RW5535-.HA.6 (3x) | 690 V, 143 A | **3RW5953-0SL06** | | 1 | 1 unit | 42S |
| | 3RW5536-.HA.6 (3x) | 690 V, 171 A | **3RW5953-0SM06** | | 1 | 1 unit | 42S |
| | 3RW5543-.HA.6 (3x) | 690 V, 210 A | **3RW5954-0SN06** | | 1 | 1 unit | 42S |
| | 3RW5544-.HA.6 (3x) | 690 V, 250 A | **3RW5954-0SP06** | | 1 | 1 unit | 42S |
| | 3RW5545-.HA.6 (3x), 3RW5546-.HA.6 (3x) | 690 V, 370 A | **3RW5954-0SR06** | | 1 | 1 unit | 42S |
| | 3RW5547-.HA.6 (3x), 3RW5548-.HA.6 (3x) | 690 V, 570 A | **3RW5954-0ST06** | | 1 | 1 unit | 42S |
| | 3RW5552-.HA.6 (3x) | 690 V, 630 A | **3RW5955-0SU06** | | 1 | 1 unit | 42S |
| | 3RW5553-.HA.6 (3x) | 690 V, 720 A | **3RW5955-0SV06** | | 1 | 1 unit | 42S |
| | 3RW5554-.HA.6 (3x) | 690 V, 840 A | **3RW5955-0SW06** | | 1 | 1 unit | 42S |
| | 3RW5556-.HA.6 (3x) | 690 V, 1 100 A | **3RW5955-0SX06** | | 1 | 1 unit | 42S |
| | 3RW5558-.HA.6 (3x) | 690 V, 1 280 A | **3RW5955-0SY06** | | 1 | 1 unit | 42S |
| **Bypass units** | | | | | | | |
| **Bypass unit** | 3RW552.-.HA.., 3RW553.-.HA.. | -- | **3RW5953-0BY00** | | 1 | 1 unit | 42S |
| | 3RW5543.-.HA.., 3RW5544.-.HA.., 3RW5545.-.HA.. | 210 ... 315 A | **3RW5954-0BP00** | | 1 | 1 unit | 42S |
| | 3RW5546.-.HA.., 3RW5547.-.HA.., 3RW5548.-.HA.. | 370 ... 570 A | **3RW5954-0BT00** | | 1 | 1 unit | 42S |
| | 3RW5552, 3RW5553, 3RW5554 | 630 ... 840 A | **3RW5955-0BW00** | | 1 | 1 unit | 42S |
| | 3RW5556, 3RW5558 | 1 100 A, 1 280 A | **3RW5955-0BY00** | | 1 | 1 unit | 42S |

3RW5952-0SF04

3RW5953-0SM06

3RW5954-0ST06

3RW5953-0BY00



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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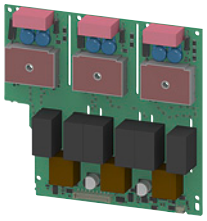
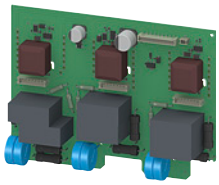
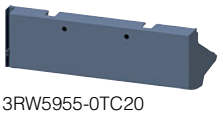
| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Control units** | | | | | | | | |
| 3RW5950-1UY00 | **Control unit** | 3RW551..-.HA0., 3RW552..-.HA0., 3RW553..-.HA0., 3RW554..-.HA0. | 24 V | **3RW5950-1UY00** | | 1 | 1 unit | 42S |
| | | 3RW555..-.HA0. | | **3RW5955-1UY00** | | 1 | 1 unit | 42S |
| | | 3RW551..-.HA1., 3RW552..-.HA1., 3RW553..-.HA1., 3RW554..-.HA1. | 110 ... 250 V | **3RW5950-1UY10** | | 1 | 1 unit | 42S |
| | | 3RW555..-.HA1. | | **3RW5955-1UY10** | | 1 | 1 unit | 42S |
| **Printed circuit boards** | | | | | | | | |
|  3RW5951-0PA04 | **Printed circuit boards** | 3RW5513-.HA.4 | 480 V, 13 A | **3RW5951-0PA04** | | 1 | 1 unit | 42S |
| | | 3RW5514-.HA.4 | 480 V, 18 A | **3RW5951-0PB04** | | 1 | 1 unit | 42S |
| | | 3RW5515-.HA.4 | 480 V, 25 A | **3RW5951-0PC04** | | 1 | 1 unit | 42S |
| | | 3RW5516-.HA.4 | 480 V, 32 A | **3RW5951-0PD04** | | 1 | 1 unit | 42S |
| | | 3RW5517-.HA.4 | 480 V, 38 A | **3RW5951-0PE04** | | 1 | 1 unit | 42S |
| | | 3RW552.-.HA.4, 3RW553.-.HA.4 | 480 V | **3RW5953-0PY04** | | 1 | 1 unit | 42S |
| | | 3RW554.-.HA.4 | 480 V | **3RW5954-0PY04** | | 1 | 1 unit | 42S |
| | | 3RW5513-.HA.5 | 600 V, 13 A | **3RW5951-0PA05** | | 1 | 1 unit | 42S |
| | | 3RW5514-.HA.5 | 600 V, 18 A | **3RW5951-0PB05** | | 1 | 1 unit | 42S |
| | | 3RW5515-.HA.5 | 600 V, 25 A | **3RW5951-0PC05** | | 1 | 1 unit | 42S |
| | | 3RW5516-.HA.5 | 600 V, 32 A | **3RW5951-0PD05** | | 1 | 1 unit | 42S |
| | | 3RW5517-.HA.5 | 600 V, 38 A | **3RW5951-0PE05** | | 1 | 1 unit | 42S |
|  3RW5954-0PY06 | | 3RW552.-.HA.6, 3RW553.-.HA.6 | 690 V | **3RW5953-0PY06** | | 1 | 1 unit | 42S |
| | | 3RW554.-.HA.6 | 690 V | **3RW5954-0PY06** | | 1 | 1 unit | 42S |
| | **Firing printed circuit boards** | 3RW555.-.HA.4 | 480 V | **3RW5955-0PY14** | | 1 | 1 unit | 42S |
| | | 3RW555.-.HA.6 | 690 V | **3RW5955-0PY16** | | 1 | 1 unit | 42S |
| | **TSE printed circuit boards** | 3RW555.-.HA.4 | 480 V | **3RW5955-0PY24** | | 1 | 1 unit | 42S |
| | | 3RW555.-.HA.6 | 690 V | **3RW5955-0PY26** | | 1 | 1 unit | 42S |
| **Fans** | | | | | | | | |
| 3RW5983-0FF00 | **Fan** | 3RW551 (1x), 3RW552 (2x), 3RW553 (2x) | -- | **3RW5983-0FF00** | | 1 | 1 unit | 42S |
| | | 3RW554 (1x) | -- | **3RW5984-0FF00** | | 1 | 1 unit | 42S |
| | | 3RW555 (3x) | -- | **3RW5985-0FF00** | | 1 | 1 unit | 42S |
| **Terminals and terminal covers** | | | | | | | | |
| 3RW5982-0TB00 | **Box terminal block** | 3RW552 (2x) | -- | **3RW5982-0TB00** | | 1 | 1 unit | 42S |
| 3RW5980-1TR00 | **Removable control terminals** | • Screw terminals | | **Screw terminals** | | | | |
| | | 3RW551.-1H... (2x), 3RW552.-1H... (2x), 3RW553.-6H... (2x), 3RW554.-6H... (2x), 3RW555.-6H... (2x) | Contains 2 blocks each with 6 terminals | **3RW5980-1TR00** | | 1 | 1 unit | 42S |
| | | • Spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | | 3RW551.-3H... (2x), 3RW552.-3H... (2x), 3RW553.-2H... (2x), 3RW554.-2H... (2x), 3RW555.-2H... (2x) | Contains 2 blocks each with 6 terminals | **3RW5980-2TR00** | | 1 | 1 unit | 42S |
|  3RW5955-0TC20 | **Terminal cover** | 3RW555 | -- | **3RW5955-0TC20** | | 1 | 1 unit | 42S |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## For 3RW55

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Enclosure components** | | | | | | | | |
| 3RW5953-0GB00 | **Lower part of enclosure** | 3RW552.-.HA.., 3RW553.-.HA.. | -- | **3RW5953-0GB00** | | 1 | 1 unit | 42S |
| | | 3RW554.-.HA.. | -- | **3RW5954-0GB00** | | 1 | 1 unit | 42S |
| 3RW5955-0GC00 | **Ventilation cover** | 3RW555 (3x) | -- | **3RW5955-0GC00** | | 1 | 1 unit | 42S |
| 3RW5950-0GD20 | **Cover for control cable duct** | 3RW55..-.HA.. | Titanium gray | **3RW5950-0GD20** | | 1 | 1 unit | 42S |
| 3RW5954-0GF00 | **Front cover** | 3RW554.-.HA.. | -- | **3RW5954-0GF00** | | 1 | 1 unit | 42S |
| | | 3RW555 | -- | **3RW5955-0GF00** | | 1 | 1 unit | 42S |
| 3RW5950-0GL30 | **Hinged cover** | 3RW55 | With cutout for High-Feature HMI module | **3RW5950-0GL30** | | 1 | 1 unit | 42S |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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**For 3RW55**

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | |
| 3RW5980-0HF00 | **HMI module** | 3RW55 | High-Feature | **3RW5980-0HF00** | | 1 | 1 unit | 42S |
| 3RW5980-0HL00 | **Interface cover** | 3RW55 | -- | **3RW5980-0HL00** | | 1 | 1 unit | 42S |
| **Connecting cable for installing the HMI module in the soft starter** | | | | | | | | |
| 3UF7931-0AA00-0 | **Connecting cable** | -- | Length 0.1 m, flat | **3UF7931-0AA00-0** | | 1 | 1 unit | 42J |
| **Transport packaging** | | | | | | | | |
| 3RW5953-0VY00 | **Transport packaging** | 3RW551 | -- | **3RW5951-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW552, 3RW553 | -- | **3RW5953-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW554 | -- | **3RW5954-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW555 | -- | **3RW5955-0VY00** | | 1 | 1 unit | 42S |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## For 3RW55 Failsafe

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter<br>Industry Mall, see www.siemens.com/product?3RW | Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 |

### Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Fans** | | | | | | | | |
| 3RW5983-0FF00 | **Fan** | 3RW551 (1x), 3RW552 (2x), 3RW553 (2x) | -- | **3RW5983-0FF00** | | 1 | 1 unit | 42S |
| | | 3RW554 (1x) | -- | **3RW5984-0FF00** | | 1 | 1 unit | 42S |
| **Terminals and terminal covers** | | | | | | | | |
| 3RW5982-0TB00 | **Box terminal block** | 3RW552 (2x) | -- | **3RW5982-0TB00** | | 1 | 1 unit | 42S |
| 3RW5980-1TR00 | **Removable control terminals** | • Screw terminals | | **Screw terminals** | | | | |
| | | 3RW551.-1H... (2x), 3RW552.-1H... (2x), 3RW553.-6H... (2x), 3RW554.-6H... (2x) | Contains 2 blocks each with 6 terminals | **3RW5980-1TR00** | | 1 | 1 unit | 42S |
| | | • Spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | | 3RW551.-3H... (2x), 3RW552.-3H... (2x), 3RW553.-2H... (2x), 3RW554.-2H... (2x) | Contains 2 blocks each with 6 terminals | **3RW5980-2TR00** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | |
|  3RW5950-0GD30 | **Cover for control cable duct** | 3RW55..-.HF.. | Yellow | **3RW5950-0GD30** | | 1 | 1 unit | 42S |
| 3RW5950-0GL30 | **Hinged cover** | 3RW55 | With cutout for High-Feature HMI module | **3RW5950-0GL30** | | 1 | 1 unit | 42S |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**For 3RW55 Failsafe**

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **HMI modules** | | | | | | | | |
| 3RW5980-0HF00 | **HMI module** | 3RW55 | High-Feature | **3RW5980-0HF00** | | 1 | 1 unit | 42S |
| 3RW5980-0HL00 | **Interface cover** | 3RW55 | -- | **3RW5980-0HL00** | | 1 | 1 unit | 42S |
| **Connecting cable for installing the HMI module in the soft starter** | | | | | | | | |
| 3UF7931-0AA00-0 | **Connecting cable** | -- | Length 0.1 m, flat | **3UF7931-0AA00-0** | | 1 | 1 unit | 42J |
| **Transport packaging** | | | | | | | | |
| 3RW5953-0VY00 | **Transport packaging** | 3RW551 | -- | **3RW5951-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW552, 3RW553 | -- | **3RW5953-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW554 | -- | **3RW5954-0VY00** | | 1 | 1 unit | 42S |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## For 3RW52

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter<br>Industry Mall, see www.siemens.com/product?3RW | Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 |

### Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Power semiconductor modules** | | | | | | | | |
| 3RW5952-0SF04 | **Power semiconductor module** | 3RW5224-..C.4 (3x) | 480 V, 47 A | **3RW5952-0SF04** | | 1 | 1 unit | 42S |
| | | 3RW5225-..C.4 (3x), 3RW5226-..C.4 (3x) | 480 V, 77 A | **3RW5952-0SH04** | | 1 | 1 unit | 42S |
| | | 3RW5227-..C.4 (3x) | 480 V, 93 A | **3RW5952-0SJ04** | | 1 | 1 unit | 42S |
| | | 3RW5234-..C.4 (3x), 3RW5235-..C.4 (3x) | 480 V, 143 A | **3RW5953-0SL04** | | 1 | 1 unit | 42S |
| | | 3RW5236-..C.4 (3x) | 480 V, 171 A | **3RW5953-0SM04** | | 1 | 1 unit | 42S |
| | | 3RW5224-..C.5 (3x) | 600 V, 47 A | **3RW5952-0SF05** | | 1 | 1 unit | 42S |
| | | 3RW5225-..C.5 (3x), 3RW5226-..C.5 (3x) | 600 V, 77 A | **3RW5952-0SH05** | | 1 | 1 unit | 42S |
| | | 3RW5227-..C.5 (3x) | 600 V, 93 A | **3RW5952-0SJ05** | | 1 | 1 unit | 42S |
| 3RW5953-0SM05 | | 3RW5234-..C.5 (3x), 3RW5235-..C.5 (3x) | 600 V, 143 A | **3RW5953-0SL05** | | 1 | 1 unit | 42S |
| | | 3RW5236-..C.5 (3x) | 600 V, 171 A | **3RW5953-0SM05** | | 1 | 1 unit | 42S |
| | | 3RW5243 (3x) | 600 V, 210 A | **3RW5924-0SN05** | | 1 | 1 unit | 42S |
| | | 3RW5244 (3x), 3RW5245 (3x) | 600 V, 315 A | **3RW5924-0SQ05** | | 1 | 1 unit | 42S |
| | | 3RW5246 (3x), 3RW5247 (3x) | 600 V, 470 A | **3RW5924-0SS05** | | 1 | 1 unit | 42S |
| 3RW5924-0ST05 | | 3RW5248 (3x) | 600 V, 570 A | **3RW5924-0ST05** | | 1 | 1 unit | 42S |
| **Bypass units** | | | | | | | | |
| 3RW5953-0BY00 | **Bypass unit** | 3RW522, 3RW523 | -- | **3RW5953-0BY00** | | 1 | 1 unit | 42S |
| | | 3RW5243, 3RW5244, 3RW5245 | 210 ... 315 A | **3RW5954-0BP00** | | 1 | 1 unit | 42S |
| | | 3RW5246, 3RW5247, 3RW5248 | 370 ... 570 A | **3RW5954-0BT00** | | 1 | 1 unit | 42S |
| **Control units** | | | | | | | | |
| 3RW5920-1UA00 | **Control unit** | 3RW52..-.AC0. | 24 V analog output | **3RW5920-1UA00** | | 1 | 1 unit | 42S |
| | | 3RW52..-.AC1. | 110 ... 250 V analog output | **3RW5920-1UA10** | | 1 | 1 unit | 42S |
| | | 3RW52..-.TC0. | 24 V thermistor input | **3RW5920-1UT00** | | 1 | 1 unit | 42S |
| | | 3RW52..-.TC1. | 110 ... 250 V thermistor input | **3RW5920-1UT10** | | 1 | 1 unit | 42S |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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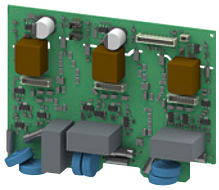
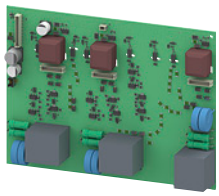
| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Printed circuit boards** | | | | | | | | |
|  3RW5923-0PY04 | **Printed circuit board** | 3RW5213-..C.4 | 480 V, 13 A | **3RW5921-0PA04** | | 1 | 1 unit | 42S |
| | | 3RW5214-..C.4 | 480 V, 18 A | **3RW5921-0PB04** | | 1 | 1 unit | 42S |
| | | 3RW5215-..C.4 | 480 V, 25 A | **3RW5921-0PC04** | | 1 | 1 unit | 42S |
| | | 3RW5216-..C.4 | 480 V, 32 A | **3RW5921-0PD04** | | 1 | 1 unit | 42S |
| | | 3RW5217-..C.4 | 480 V, 38 A | **3RW5921-0PE04** | | 1 | 1 unit | 42S |
| | | 3RW522.-..C.4, 3RW523.-..C.4 | 480 V | **3RW5923-0PY04** | | 1 | 1 unit | 42S |
| | | 3RW524.-..C.4 | 480 V | **3RW5924-0PY04** | | 1 | 1 unit | 42S |
|  3RW5924-0PY05 | | 3RW5213-..C.5 | 600 V, 13 A | **3RW5921-0PA05** | | 1 | 1 unit | 42S |
| | | 3RW5214-..C.5 | 600 V, 18 A | **3RW5921-0PB05** | | 1 | 1 unit | 42S |
| | | 3RW5215-..C.5 | 600 V, 25 A | **3RW5921-0PC05** | | 1 | 1 unit | 42S |
| | | 3RW5216-..C.5 | 600 V, 32 A | **3RW5921-0PD05** | | 1 | 1 unit | 42S |
| | | 3RW5217-..C.5 | 600 V, 38 A | **3RW5921-0PE05** | | 1 | 1 unit | 42S |
| | | 3RW522.-..C.5, 3RW523.-..C.5 | 600 V | **3RW5923-0PY05** | | 1 | 1 unit | 42S |
| | | 3RW524.-..C.5 | 600 V | **3RW5924-0PY05** | | 1 | 1 unit | 42S |
| **Fans** | | | | | | | | |
| 3RW5983-0FF00 | **Fan** | 3RW5216/17 (1x), 3RW5226/27 (2x), 3RW523 (2x) | -- | **3RW5983-0FF00** | | 1 | 1 unit | 42S |
| | | 3RW524 (1x) | -- | **3RW5984-0FF00** | | 1 | 1 unit | 42S |
| **Terminals** | | | | | | | | |
| 3RW5982-0TB00 | **Box terminal block** | 3RW522 (2x) | -- | **3RW5982-0TB00** | | 1 | 1 unit | 42S |
| | **Removable control terminals** | • Screw terminals | | **Screw terminals** | | | | |
| 3RW5980-1TR00 | | 3RW521.-1.C.., 3RW522.-1.C.., 3RW523.-6.C.., 3RW524.-6.C.. | Contains 2 blocks each with 6 terminals | **3RW5980-1TR00** | | 1 | 1 unit | 42S |
| | | • Spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | | 3RW521.-3.C.., 3RW522.-3.C.., 3RW523.-2.C.., 3RW524.-2.C.. | Contains 2 blocks each with 6 terminals | **3RW5980-2TR00** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | |
| 3RW5953-0GB00 | **Lower part of enclosure** | 3RW522, 3RW523 | -- | **3RW5953-0GB00** | | 1 | 1 unit | 42S |
| | | 3RW524 | -- | **3RW5954-0GB00** | | 1 | 1 unit | 42S |
| 3RW5950-0GD20 | **Cover for control cable duct** | 3RW52 | Titanium gray | **3RW5950-0GD20** | | 1 | 1 unit | 42S |

6

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## For 3RW52

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Enclosure components** | | | | | | | | |
| 3RW5954-0GF00 | **Front cover** | 3RW524 | -- | **3RW5954-0GF00** | | 1 | 1 unit | 42S |
| 3RW5950-0GL20 | **Hinged cover** | 3RW52 | Without cutout | **3RW5950-0GL20** | | 1 | 1 unit | 42S |
| **Transport packaging** | | | | | | | | |
| 3RW5953-0VY00 | **Transport packaging** | 3RW521 | -- | **3RW5951-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW522, 3RW523 | -- | **3RW5953-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW524 | -- | **3RW5954-0VY00** | | 1 | 1 unit | 42S |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-soft-starter<br>Industry Mall, see www.siemens.com/product?3RW | Industry Online Support (SIOS) topic page, see https://support.industry.siemens.com/cs/ww/en/view/109747404 |

## Selection and ordering data

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Power semiconductor modules** | | | | | | | | |
| 3RW5953-0SL0. | **Power semiconductor module** | 3RW505.-..B.4 (2x) | 480 V, 171 A | **3RW5953-0SL04** | | 1 | 1 unit | 42S |
| | | 3RW505.-..B.5 (2x) | 600 V, 171 A | **3RW5953-0SL05** | | 1 | 1 unit | 42S |
| 3RW5924-0S.05 | | 3RW5072 (2x) | 600 V, 210 A | **3RW5924-0SN05** | | 1 | 1 unit | 42S |
| | | 3RW5073 (2x), 3RW5074 (2x) | 600 V, 315 A | **3RW5924-0SQ05** | | 1 | 1 unit | 42S |
| | | 3RW5075 (2x), 3RW5076 (2x) | 600 V, 470 A | **3RW5924-0SS05** | | 1 | 1 unit | 42S |
| | | 3RW5077 (2x) | 600 V, 570 A | **3RW5924-0ST05** | | 1 | 1 unit | 42S |
| **Bypass units** | | | | | | | | |
| 3RW5905-0BY00 | **Bypass unit** | 3RW505 | -- | **3RW5905-0BY00** | | 1 | 1 unit | 42S |
| | | 3RW5072, 3RW5073, 3RW5074 | 210 ... 315 A | **3RW5907-0BQ00** | | 1 | 1 unit | 42S |
| | | 3RW5075, 3RW5076, 3RW5077 | 370 ... 570 A | **3RW5907-0BY00** | | 1 | 1 unit | 42S |
| **Control units** | | | | | | | | |
| 3RW5905-1UA00 | **Control unit** | | | | | | | |
| | Analog output | 3RW505.-.AB0. | 24 V | **3RW5905-1UA00** | | 1 | 1 unit | 42S |
| | | 3RW505.-.AB1. | 110 ... 250 V | **3RW5905-1UA10** | | 1 | 1 unit | 42S |
| | | 3RW507.-.AB0. | 24 V | **3RW5907-1UA00** | | 1 | 1 unit | 42S |
| | | 3RW507.-.AB1. | 110 ... 250 V | **3RW5907-1UA10** | | 1 | 1 unit | 42S |
| | Thermistor input | 3RW505.-.TB0. | 24 V | **3RW5905-1UT00** | | 1 | 1 unit | 42S |
| | | 3RW505.-.TB1. | 110 ... 250 V | **3RW5905-1UT10** | | 1 | 1 unit | 42S |
| | | 3RW507.-.TB0. | 24 V | **3RW5907-1UT00** | | 1 | 1 unit | 42S |
| | | 3RW507.-.TB1. | 110 ... 250 V | **3RW5907-1UT10** | | 1 | 1 unit | 42S |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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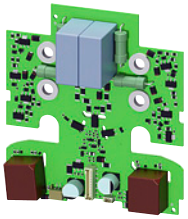
## For 3RW50

| | Product designation | Manufacturer's article number of the soft starter | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Printed circuit boards** | | | | | | | | |
|  3RW5905-0PY04 | **Printed circuit board** | 3RW505.-..B.4 | 480 V | **3RW5905-0PY04** | | 1 | 1 unit | 42S |
| | | 3RW507.-..B.4 | 480 V | **3RW5907-0PY04** | | 1 | 1 unit | 42S |
| | | 3RW505.-..B.5 | 600 V | **3RW5905-0PY05** | | 1 | 1 unit | 42S |
| | | 3RW507.-..B.5 | 600 V | **3RW5907-0PY05** | | 1 | 1 unit | 42S |
| **Fans** | | | | | | | | |
| 3RW5905-0FF00 | **Fan** | 3RW505 (1x) | -- | **3RW5905-0FF00** | | 1 | 1 unit | 42S |
| | | 3RW507 (1x) | -- | **3RW5907-0FF00** | | 1 | 1 unit | 42S |
| **Terminals** | | | | | | | | |
| 3RW5980-1TR00 | **Removable control terminals** | • Screw terminals | | **Screw terminals** | | | | |
| | | 3RW50..-6.B.. | Contains 2 blocks each with 6 terminals | **3RW5980-1TR00** | | 1 | 1 unit | 42S |
| | | • Spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | | 3RW50..-2.B.. | Contains 2 blocks each with 6 terminals | **3RW5980-2TR00** | | 1 | 1 unit | 42S |
| **Enclosure components** | | | | | | | | |
| 3RW5905-0GB00 | **Lower part of enclosure** | 3RW505 | -- | **3RW5905-0GB00** | | 1 | 1 unit | 42S |
| | | 3RW507 | -- | **3RW5907-0GB00** | | 1 | 1 unit | 42S |
| 3RW5900-0GL00 | **Hinged cover** | 3RW50 | -- | **3RW5900-0GL00** | | 1 | 1 unit | 42S |
| **Transport packaging** | | | | | | | | |
| 3RW5905-0VY00 | **Transport packaging** | 3RW505 | -- | **3RW5905-0VY00** | | 1 | 1 unit | 42S |
| | | 3RW507 | -- | **3RW5907-0VY00** | | 1 | 1 unit | 42S |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information | |
|---|---|
| Industry Mall, see www.siemens.com/product?3RF | Online configurator, see www.siemens.com/sirius/configurators<br>Conversion tool, see www.siemens.com/conversion-tool |

***SIRIUS 3RF solid-state switching devices***

1-phase solid-state relay and 3-phase solid-state contactor

The SIRIUS 3RF2 solid-state switching devices reliably switch a wide range of different loads with alternating voltages in 50 and 60 Hz systems.

SIRIUS 3RF2 solid-state switching devices for resistive/inductive loads:

- Solid-state relays
- Solid-state contactors
- Function modules

SIRIUS 3RF2 – for almost unending activity

Conventional electromechanical switchgear is often overtaxed by the rise in the number of switching operations. A high switching frequency results in frequent failure and short replacement cycles. However, this does not have to be the case, because with the latest generation of our SIRIUS 3RF2 solid-state switching devices we provide you with solid-state relays and contactors with a particularly long endurance – for almost unending activity even under the toughest conditions and under high mechanical loading, but also in noise-sensitive areas.

Proven time and again in service

SIRIUS 3RF2 solid-state switching devices have firmly established themselves in industrial applications. They are used above all in applications where loads are switched frequently – mainly with resistive load controllers, with the control of electrical heat or the control of valves and motors in conveyor systems. In addition to its use in areas with high switching frequencies, their silent switching means that SIRIUS is also ideally suited for use in noise-sensitive areas, such as offices or hospitals.

The most reliable solution for any application

Compared to mechanical switchgear, our SIRIUS 3RF2 solid-state switching devices stand out due to their considerably longer service life. Thanks to the high product quality, their switching is extremely precise, reliable and, above all, insusceptible to faults. With its variable connection methods and a wide spread of control voltages, the SIRIUS 3RF2 family is universally applicable. Depending on the individual requirements of the application, our modular switchgear can also be quite easily expanded by the addition of standardized function modules.

Always on the sunny side with SIRIUS

Because SIRIUS 3RF2 offers even more:

- The space-saving and compact side-by-side mounting ensures reliable operation up to an ambient temperature of +60 °C.
- Thanks to fast configuration and the ease of mounting and startup, not only time but also expenses are saved.

Also for switching motors (see page 6/159)

In order to achieve higher productivity, the switching frequency is continuously increased in drive technology. It is no problem for our SIRIUS solid-state contactors for switching motors. With three-phase motors up to 7.5 kW, they can reliably withstand even the highest switching frequencies. Even a continuous change in the direction of rotation is possible with the solid-state reversing contactors. Both versions can be perfectly combined with components from the SIRIUS modular system. Connecting with SIRIUS motor starter protectors or SIRIUS overload relays can be implemented without any further steps.

SIRIUS 3RF3 solid-state switching devices for switching motors:

- Solid-state contactors
- Solid-state reversing contactors

***Connection methods***

The solid-state switching devices are available with screw terminals (box terminals), spring-loaded terminals or ring cable lug connections.

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals |
| | Ring cable lug connection |
| | The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds. |

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## General data

### *Article number scheme*

| Product versions | | Article number | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Device type | **Solid-state relays** | **3RF20** | □ | □ | – | □ | □ | □ | □ | □ | | | 1-phase, 45-mm width |
| | | **3RF21** | □ | □ | – | □ | □ | □ | □ | □ | | | 1-phase, 22.5-mm width |
| | | **3RF22** | □ | □ | – | □ | □ | □ | □ | □ | | | 3-phase, 45-mm width |
| | **Solid-state contactors** | **3RF23** | □ | □ | – | □ | □ | □ | □ | □ | | | 1-phase |
| | | **3RF24** | □ | □ | – | □ | □ | □ | □ | □ | | | 3-phase |
| Type current | e.g. 20 = 20 A | | □ | □ | | | | | | | | | |
| Connection type | Screw terminals | | | | | **1** | | | | | | | |
| | Spring-loaded terminals | | | | | **2** | | | | | | | |
| | Ring cable lug connection | | | | | **3** | | | | | | | |
| Switching function | Zero-point switching | | | | | | **A** | | | | | | |
| | Instantaneous switching | | | | | | **B** | | | | | | |
| | Zero-point switching | | | | | | **C** | | | | | | Low noise |
| | Zero-point switching | | | | | | **D** | | | | | | Short-circuit-proof with B MCB |
| 1-phase or number of controlled phases | 1-phase | | | | | | | **A** | | | | | |
| | 2-phase | | | | | | | **B** | | | | | |
| | 3-phase | | | | | | | **C** | | | | | |
| Rated control supply voltage $U_s$ | 24 V DC | | | | | | | | **0** | | | | |
| | 24 V AC/DC | | | | | | | | **1** | | | | |
| | 110 ... 230 V AC | | | | | | | | **2** | | | | |
| | 110 V AC | | | | | | | | **3** | | | | |
| | 4 ... 30 V DC | | | | | | | | **4** | | | | |
| | 230 V AC | | | | | | | | **5** | | | | |
| Rated operational voltage $U_e$ | 24 ... 230 V AC | | | | | | | | | **2** | | | |
| | 48 ... 460 V AC | | | | | | | | | **4** | | | |
| | 48 ... 600 V AC | | | | | | | | | **5** | | | Blocking voltage 1 200 V |
| | 48 ... 600 V AC | | | | | | | | | **6** | | | Blocking voltage 1 600 V |
| Example | | **3RF21** | **2** | **0** | **–** | **1** | **A** | **A** | **0** | **6** | | | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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***Overview of the SIRIUS 3RF2 solid-state switching devices***

| Type | Solid-state relays | | | Solid-state contactors | | Function modules | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1-phase | | 3-phase | 1-phase | 3-phase | Converters | Load monitoring | | Heating current monitoring | Power controllers | Power regulators |
| | 22.5 mm | 45 mm | 45 mm | | | | Basic | Extended | | | |
| **Usage** | | | | | | | | | | | |
| Simple replacement of existing solid-state relays | ❑ | ✓ | ❑ | ❑ | ❑ | -- | -- | -- | -- | -- | -- |
| Complete unit "Ready to use" | ❑ | ❑ | ❑ | ✓ | ✓ | -- | -- | -- | -- | -- | -- |
| Space-saving | ✓ | -- | ✓ | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- |
| Can be extended with modular function modules | ✓ | -- | [1] | ✓ | [1] | -- | -- | -- | -- | -- | -- |
| Frequent switching and monitoring of the load and the solid-state relay or contactor | -- | -- | -- | -- | -- | -- | ✓ | ✓ | ✓ | ✓ | ✓ |
| Monitoring of up to 6 partial loads | -- | -- | -- | -- | -- | -- | ✓ | -- | ✓ | ✓ | -- |
| Monitoring of more than 6 partial loads | -- | -- | -- | -- | -- | -- | -- | ✓ | -- | -- | -- |
| Control of the heating power through an analog input | -- | -- | -- | -- | -- | ✓ | -- | -- | -- | ✓ | ✓ |
| Power control | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | ✓ |
| **Startup** | | | | | | | | | | | |
| Easy setting of setpoint values with "Teach" button | -- | -- | -- | -- | -- | -- | ✓ | ✓ | -- | ✓ | ✓ |
| "Remote Teach" input for setting setpoints | -- | -- | -- | -- | -- | -- | -- | -- | ✓ | -- | -- |
| **Mounting** | | | | | | | | | | | |
| Mounting on mounting rails or mounting plates | -- | -- | -- | ✓ | ✓ | -- | -- | -- | -- | -- | -- |
| Can be snapped directly onto a solid-state relay or contactor | -- | -- | -- | -- | -- | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| For use with "Coolplate" heat sink | ✓ | ✓ | ✓ | -- | -- | -- | -- | -- | -- | -- | -- |
| **Cable routing** | | | | | | | | | | | |
| Connection of load circuit as for switchgear | ✓ | -- | ✓ | ✓ | ✓ | -- | ✓ | ✓ | ✓ | ✓ | ✓ |
| Connection of load circuit from above | -- | ✓ | -- | -- | -- | -- | -- | -- | -- | -- | -- |

✓ Function available

❑ Function possible

-- Function not possible

[1] The converter can also be used with 3-phase devices.

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## General data

### Benefits

***Main features***

- LED display
- Variety of connection methods, also with high degree of protection
- Plug-in control connection
- Zero-point switching, 2-phase or 3-phase controlled

***Features***

- Considerable space savings thanks to a width of only 22.5 mm
- Variety of connection methods: Screw terminal, spring-loaded terminal or ring cable lug, there is no problem – they are all finger-safe
- Flexible for all applications with function modules for retrofitting
- Possibility of fuseless short-circuit-proof design

***Benefits***

- Saves time and costs with fast mounting and commissioning, short startup times and easy wiring
- Extremely long life, low maintenance, rugged and reliable
- Space-saving and safe thanks to side-by-side mounting up to an ambient temperature of +60 °C
- Modular design: Standardized function modules and heat sinks can be used in conjunction with solid-state relays to satisfy individual requirements.
- Safety due to lifelong, vibration-resistant and shock-resistant spring-loaded terminals even under tough conditions
- Optimum heat transfer allows small, space-saving heat sinks to be used

### Application

***Applications***

Example: Plastics processing industry

Thanks to their high switching endurance SIRIUS 3RF2 solid-state switching devices are ideal for controlling electrical heat. This is because the more precise the temperature regulation process has to be, the higher the switching frequency.
The accurate regulation of electrical heat is used for example in many processes in the plastics processing industry:

- Band heaters heat the extrudate to the correct temperature in plastic extruders
- Heat emitters heat plastic blanks to the correct temperature
- Heat drums dry plastic granules
- Heating channels keep molds at the correct temperature in order to manufacture different plastic parts without defects

The powerful SIRIUS 3RF2 solid-state relays and contactors can be used for the simultaneous control of several heating loads. By using a load monitoring module the individual partial loads can easily be monitored, and in the event of a failure a signal is generated to be sent to the controller.

Use in fuseless load feeders

Compared with the fused configuration of load feeders, short-circuit and line protection using miniature circuit breakers is easy to achieve with SIRIUS 3RF2 solid-state relays and contactors.

A special version of the solid-state contactors can be protected against damage in the case of a short circuit with a miniature circuit breaker with type B tripping characteristic. This allows the low-cost and simple design of fuseless load feeders with full protection of the switchgear.

### More information

***Notes on integration in the load feeders***

The SIRIUS solid-state switching devices are very easy to integrate into the load feeders thanks to their industrial connection method and design.

Particular attention must however be paid to the circumstances of the installation and ambient conditions, as the performance of the solid-state switching devices is largely dependent on these. Depending on the version, certain restrictions must be observed. For detailed information, for example in relation to solid-state contactors about the minimum spacing and to solid-state relays about the choice of heat sink, see technical specifications and product data sheets, https://support.industry.siemens.com/cs/ww/en/ps/16222.

Short-circuit and overload protection

Despite the rugged power semiconductors that are used, solid-state switching devices respond more sensitively to short circuits in the load feeder. Consequently, special precautions have to be taken against destruction, depending on the type of design.

Siemens generally recommends using SITOR semiconductor protection fuses. These fuses also provide protection against destruction in the event of a short circuit even when the solid-state contactors and solid-state relays are fully utilized.

Alternatively, if there is lower loading, protection can also be provided by standard fuses or miniature circuit breakers. This protection is achieved by overdimensioning the solid-state switching devices accordingly. The technical specifications and the product data sheets contain details both about the solid-state fuse protection itself and about use of the devices with conventional protection equipment.

Electromagnetic compatibility (EMC)

The solid-state switching devices are suitable for interference-free operation in industrial networks without further measures. If they are used in public networks, it may be necessary for conducted interference to be reduced by means of filters.

This does not include the solid-state contactors for resistive loads of the special type 3RF23..-.CA.. "low noise". These comply with the class B limit values up to a rated current of 16 A. If other versions are used, and at currents of over 16 A, standard filters can be used in order to comply with the limit values. The decisive factors when it comes to selecting the filters are essentially the current loading and the other parameters (operational voltage, design type, etc.) in the load feeder.

Suitable filters can be ordered from EPCOS AG, see page 16/18.

***Product information and technical specifications***

For product data sheets with detailed technical specifications, dimensional drawings and characteristic curves, see https://support.industry.siemens.com/cs/ww/en/ps/16222.

For more information, please enter the article number of the required device under the tab "Product List".

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## Overview

### *Solid-state relays (without heat sink)*

SIRIUS solid-state relays are suitable for surface mounting on existing cooling surfaces. Mounting is quick and easy, involving just two screws. The special technology of the power semiconductor ensures that there is excellent thermal contact with the heat sink. Depending on the nature of the heat sink, the capacity reaches up to 88 A on resistive loads.

The solid-state relays are available in three different versions:

- 3RF21 1-phase solid-state relay with a width of 22.5 mm
- 3RF20 1-phase solid-state relay with a width of 45 mm
- 3RF22 3-phase solid-state relay with a width of 45 mm

Version for resistive loads "zero-point switching"

This standard version is often used for 3RF20 to 3RF22 solid-state relays for switching heaters on and off.

Version for inductive loads "instantaneous switching"

In this version, the 3RF20 and 3RF21 solid-state relays are specifically matched to inductive loads. Whether it is a matter of frequent actuation of the valves in a filling plant or starting and stopping small operating mechanisms in packet distribution systems, operation is carried out safely and noiselessly.

Special "low noise" version

Thanks to a special control circuit of the 3RF21 solid-state contactors, this special version can be used in public networks up to 16 A without any additional measures such as interference suppressor filters. As a result, in terms of emitted interference, it conforms to limit value curve class B according to IEC 60947-4-3.

Function modules

The 3RF21 and 3RF22 solid-state relays can be expanded with various function modules for individual adaptation to applications, see page 6/150 onwards.

### *3RF21 1-phase solid-state relays (without heat sink) with a width of 22.5 mm*

With its compact design and a width of just 22.5 mm, which is not exceeded even for currents of up to 88 A, the 3RF21 solid-state relay offers an ultra-small footprint. The logical connection method, with the power infeed from above and load connection from below, ensures tidy installation in the control cabinet.

### *3RF20 1-phase solid-state relays (without heat sink) with a width of 45 mm*

The solid-state relays with a width of 45 mm provide for connection of the power supply lead and the load from above. This makes it easy to replace existing solid-state relays in existing arrangements. The connection of the control cable is as space-saving as the 22.5 mm design, as it is simply plugged on.

### *3RF22 3-phase solid-state relays (without heat sink) with a width of 45 mm*

With its compact design, which stays the same even at currents of up to 55 A, the 3RF22 solid-state relay with a width of just 45 mm offers an ultra small footprint. The logical connection method, with the power infeed from above and load connection from below, ensures tidy installation in the control cabinet.

The 3-phase solid-state relays are available with

- 2-phase control (suitable in particular for circuits without connection to the neutral conductor) and
- 3-phase control (suitable for star circuits with connection to the neutral conductor or for applications in which the system requires all phases to be switched)

### *Selection notes*

When selecting solid-state relays, in addition to information about the network, the load and the ambient conditions, it is also necessary to know details of the planned design. The solid-state relays can only conform to their specific technical specifications if they are mounted with appropriate care on an adequately dimensioned heat sink.

Mounting solid-state relays directly on a mounting plate made of sheet steel is inadequate in terms of heat dissipation.

The following procedure is recommended:

- Determine the rated current of the load and the mains voltage
- Select the relay design and choose a solid-state relay with higher rated current than the load
- Determine the thermal resistance of the proposed heat sink
- Check the correct relay size with the aid of the diagrams
- In systems that have high voltage peaks or at voltages of 575 V and higher, use of versions with a blocking voltage of 1 600 V is recommended.

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## Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16223/faq |

| | | | | |
|---|---|---|---|---|
| Type | | **3RF21..-1....** | **3RF21..-2....** | **3RF21..-3....** |
| Dimensions (W x H x D) | mm | 22.5 x 85 x 48 mm | 22.5 x 85 x 48 mm | 22.5 x 85 x 48 mm |
| **General data** | | | | |
| **Ambient temperature** | | | | |
| • During operation, derating from 40 °C | °C | -25 ... +60 | | |
| • During storage | °C | -55 ... +80 | | |
| **Installation altitude** | m | 0 ... 1 000; derating from 1 000 | | |
| **Shock resistance** according to IEC 60068-2-27 | *g*/ms | 15/11 | | |
| **Vibration resistance** according to IEC 60068-2-6 | *g* | 2 | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | IP00 (IP20 when using the 3RF2900-3PA88 terminal cover) |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | | -- |
| **Electromagnetic compatibility** (EMC) | | | | |
| • Emitted interference | | | | |
| - Conducted interference voltage according to IEC 60947-4-3 | | Class A for industrial applications | | |
| - Emitted, high-frequency interference voltage according to IEC 60947-4-3 | | Class B for residential, business and commercial applications | | |
| • Interference immunity | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV | Contact discharge 4; air discharge 8; behavior criterion 2 | | |
| - Induced RF fields according to IEC 61000-4-6 | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | | |
| - Burst according to IEC 61000-4-4 | kV | 2/5.0 kHz; behavior criterion 2 | | |
| - Surge according to IEC 61000-4-5 | kV | Conductor - ground 2; conductor - conductor 1; behavior criterion 2 | | |
| **Mounting** | | | | |
| • Screws (not included in the scope of supply) | | 2 x M4 | | |
| • Tightening torque | Nm | 1.5 | | |
| **Connection type** | | **Screw terminals** | **Spring-loaded terminals** | **Ring cable lug connection** |
| **Connection, main contacts** | | | | |
| • Conductor cross-sections | | | | |
| - Solid | $mm^2$ | 2 x (1.5 ... 2.5)[1], 2 x (2.5 ... 6)[1] | 2 x (0.5 ... 2.5) | -- |
| - Finely stranded with end sleeve | $mm^2$ | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 6)[1], 1 x 10 | 2 x (0.5 ... 1.5) | -- |
| - Finely stranded without end sleeve | $mm^2$ | -- | 2 x (0.5 ... 2.5) | -- |
| - Solid or stranded, AWG cables | AWG | 2 x (14 ... 10) | 2 x (18 ... 14) | -- |
| • Terminal screws | | M4 | -- | M5 |
| • Tightening torque | Nm | 2 ... 2.5 | -- | 2 ... 2.5 |
| | lb.in | 7 ... 10.3 | -- | 7 ... 10.3 |
| • Cable lugs | | | | |
| - According to DIN 46234 | | -- | -- | 5-2.5, 5-6, 5-10, 5-16, 5-25 |
| - According to JIS C 2805 | | -- | -- | R 2-5, R 5.5-5, R 8-5, R 14-5 |
| - Width, maximum | mm | -- | -- | 12 |
| **Connection, auxiliary/control contacts** | | | | |
| • Conductor cross-sections | mm | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) | 0.5 ... 2.5 | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) |
| | AWG | 20 ... 12 | 20 ... 12 | 20 ... 12 |
| • Stripped length | mm | 7 | 10 | 7 |
| • Terminal screw | | M3 | -- | M3 |
| • Tightening torque | Nm | 0.5 ... 0.6 | -- | 0.5 ... 0.6 |
| | lb.in | 4.5 ... 5.3 | -- | 4.5 ... 5.3 |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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| Type | $I_{max}$ [1] at $R_{thha}/T_u$ = 40 °C | | $I_e$ according to IEC 60947-4-3 at $R_{thha}/T_u$ = 40 °C | | $I_e$ according to UL/CSA at $R_{thha}/T_u$ = 50 °C | | Power loss at $I_{max}$ | Minimum load current | Off-state current |
|---|---|---|---|---|---|---|---|---|---|
| | A | K/W | A | K/W | A | K/W | W | A | mA |
| **Main circuit** | | | | | | | | | |
| **3RF2120-.....** | 20 | 2.00 | 20 | 1.70 | 20 | 1.30 | 28.6 | 0.1 | 10 |
| **3RF2130-1....** | 30 | 1.45 | 30 | 1.45 | 30 | 1.25 | 44.2 | 0.5 | 10 |
| **3RF2150-1....** | 50 | 0.85 | 50 | 0.85 | 50 | 0.70 | 66 | 0.5 | 10 |
| **3RF2150-2....** | 50 | 0.85 | 20 | 2.90 | 20 | 2.60 | 66 | 0.5 | 10 |
| **3RF2150-3....** | 50 | 0.85 | 50 | 0.85 | 50 | 0.70 | 66 | 0.5 | 10 |
| **3RF2170-1....** | 70 | 0.50 | 50 | 1.15 | 50 | 1.00 | 94 | 0.5 | 10 |
| **3RF2190-1....** | 88 | 0.55 | 50 | 1.40 | 50 | 0.85 | 118 | 0.5 | 10 |
| **3RF2190-2....** | 88 | 0.55 | 20 | 3.50 | 20 | 2.80 | 118 | 0.5 | 10 |
| **3RF2190-3....** | 88 | 0.55 | 80 | 0.55 | 80 | 0.45 | 118 | 0.5 | 10 |

1) The current $I_{max}$ provides information about the performance of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

Note:

The required heat sinks for the corresponding load currents can be determined from the characteristic curves (see page 6/120, "More Information"). The minimum thickness values for the mounting surface must be observed.

| Type | Rated peak withstand current $I_{tsm}$ | $I^2t$ value |
|---|---|---|
| | A | $A^2s$ |
| **Main circuit** | | |
| **3RF2120-.....** | 200 | 200 |
| **3RF2130-..A.2** | 300 | 450 |
| **3RF2130-..A.4** | 300 | 450 |
| **3RF2130-..A.5** | 300 | 450 |
| **3RF2130-..A.6** | 400 | 800 |
| **3RF2150-.....** | 600 | 1 800 |
| **3RF2170-..A.2** | 1 200 | 7 200 |
| **3RF2170-..A.4** | 1 200 | 7 200 |
| **3RF2170-..A.5** | 1 200 | 7 200 |
| **3RF2170-..A.6** | 1 150 | 6 600 |
| **3RF2190-.....** | 1 150 | 6 600 |

| Type | | **3RF21..-....2** | **3RF21..-....4** | **3RF21..-....5** | **3RF21..-....6** |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Rated operational voltage $U_e$** | V AC | 24 ... 230 | 48 ... 460 | 48 ... 600 | |
| • Operating range | V AC | 20 ... 253 | 40 ... 506 | 40 ... 660 | |
| • Rated frequency | Hz | 50/60 ± 10% | | | |
| **Rated insulation voltage $U_i$** | V | 600 | | | |
| **Blocking voltage** | V | 800 | 1 200 | | 1 600 |
| **Rate of voltage rise** | V/µs | 1 000 | | | |

| Type | | **3RF21..-...0.** | **3RF21..-...1.** | | **3RF21..-...2.** | **3RF21..-...4.** |
|---|---|---|---|---|---|---|
| **Control circuit** | | | | | | |
| **Method of operation** | | DC operation | AC/DC operation | | AC operation | DC operation |
| **Rated control supply voltage $U_s$** | V | 24 | 24 AC | 24 DC | 1 105 ... 230 | 4 ... 30 |
| **Rated frequency** of the control supply voltage | Hz | -- | 50/60 ± 10% | -- | 50/60 ± 10% | -- |
| **Control supply voltage, max.** | V | 30 | 26.5 AC | 30 DC | 253 | 30 |
| **Typical actuating current** | mA | 15/low power: 9[1] | 20 | | 15 | 15 |
| **Response voltage** | V | 15 | 14 AC | 15 DC | 90 | 4 |
| **Drop-out voltage** | V | 5 | 5 AC | 5 DC | 40 | 1 |
| **Operating times** | | | | | | |
| • ON-delay | ms | 1 + max. one half-wave[2] | 10 + max. one half-wave[2] | | 40 + max. one half-wave[2] | 1 + max. one half-wave[2] |
| • OFF-delay | ms | 1 + max. one half-wave | 15 + max. one half-wave | | 40 + max. one half-wave | 1 + max. one half-wave |

1) Applies to the "low power" version 3RF21..-.AA..-**0KN0**.
2) Only for zero-point switching devices.

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## Selection and ordering data

***1-phase solid-state relays (without heat sink) with a width of 22.5 mm***

3RF2120-1AA02

| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| A | V | Article No. / Price per PU | | | |
| **Zero-point switching, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | |
| 20 | 24 DC | **3RF2120-1AA02** | 1 | 1 unit | 41C |
| 30 | | **3RF2130-1AA02** | 1 | 1 unit | 41C |
| 50 | | **3RF2150-1AA02** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2170-1AA02** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-1AA02** | 1 | 1 unit | 41C |
| 20 | 110 ... 230 AC | **3RF2120-1AA22** | 1 | 1 unit | 41C |
| 30 | | **3RF2130-1AA22** | 1 | 1 unit | 41C |
| 50 | | **3RF2150-1AA22** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2170-1AA22** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-1AA22** | 1 | 1 unit | 41C |
| 20 | 4 ... 30 DC | **3RF2120-1AA42** | 1 | 1 unit | 41C |
| 30 | | **3RF2130-1AA42** | 1 | 1 unit | 41C |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | |
| 20 | 24 DC | **3RF2120-1AA04** | 1 | 1 unit | 41C |
| 30 | | **3RF2130-1AA04** | 1 | 1 unit | 41C |
| 50 | | **3RF2150-1AA04** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2170-1AA04** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-1AA04** | 1 | 1 unit | 41C |
| 20 | 24 AC/DC | **3RF2150-1AA14** | 1 | 1 unit | 41C |
| 20 | 110 ... 230 AC | **3RF2120-1AA24** | 1 | 1 unit | 41C |
| 30 | | **3RF2130-1AA24** | 1 | 1 unit | 41C |
| 50 | | **3RF2150-1AA24** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2170-1AA24** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-1AA24** | 1 | 1 unit | 41C |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | |
| 70 | 24 DC low power | **3RF2170-1AA05-0KN0** | 1 | 1 unit | 41C |
| 20 | 4 ... 30 DC | **3RF2120-1AA45** | 1 | 1 unit | 41C |
| 30 | | **3RF2130-1AA45** | 1 | 1 unit | 41C |
| 50 | | **3RF2150-1AA45** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2170-1AA45** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-1AA45** | 1 | 1 unit | 41C |
| **Zero-point switching · Blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | |
| 30 | 24 DC | **3RF2130-1AA06** | 1 | 1 unit | 41C |
| 50 | | **3RF2150-1AA06** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2170-1AA06** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-1AA06** | 1 | 1 unit | 41C |
| 30 | 110 ... 230 AC | **3RF2130-1AA26** | 1 | 1 unit | 41C |
| 50 | | **3RF2150-1AA26** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2170-1AA26** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-1AA26** | 1 | 1 unit | 41C |

[1] The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

[2] Please note that this version with an M4 screw connection can only be used for a rated current of up to approx. 50 A and a conductor cross-section of 10 mm$^2$.
Please use the 3RF21 solid-state relays with ring cable lug connections for these currents, see page 6/126.

Other rated control supply voltages on request.

Accessories, see page 6/127.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | Article No. | Price per PU | | | |
| A | V | | | | | |
| **Instantaneous switching, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | |
| 50 | 110 ... 230 AC | **3RF2150-1BA22** | | 1 | 1 unit | 41C |
| **Instantaneous switching, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | |
| 20 | 24 DC | **3RF2120-1BA04** | | 1 | 1 unit | 41C |
| 30 | | **3RF2130-1BA04** | | 1 | 1 unit | 41C |
| 50 | | **3RF2150-1BA04** | | 1 | 1 unit | 41C |
| 70[2] | | **3RF2170-1BA04** | | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-1BA04** | | 1 | 1 unit | 41C |
| **Instantaneous switching · Blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| 50 | 24 DC | **3RF2150-1BA06** | | 1 | 1 unit | 41C |
| **Low noise[3] · Zero-point switching, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | |
| 70[2] | 24 DC | **3RF2170-1CA04** | | 1 | 1 unit | 41C |

1) The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

2) Please note that this version with an M4 screw connection can only be used for a rated current of up to approx. 50 A and a conductor cross-section of 10 mm$^2$.
Please use the 3RF21 solid-state relays with ring cable lug connections for these currents, see page 6/126.

3) See page 6/121.

Other rated control supply voltages on request.

Accessories, see page 6/127.

| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Spring-loaded terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | | Article No. | Price per PU | | | |
| A | V | | | | | |
| **Zero-point switching, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | |
| 20 | 24 DC | **3RF2120-2AA02** | | 1 | 1 unit | 41C |
| 50[2] | | **3RF2150-2AA02** | | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-2AA02** | | 1 | 1 unit | 41C |
| 20 | 110 ... 230 AC | **3RF2120-2AA22** | | 1 | 1 unit | 41C |
| 50[2] | | **3RF2150-2AA22** | | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-2AA22** | | 1 | 1 unit | 41C |
| 20 | 4 ... 30 DC | **3RF2120-2AA42** | | 1 | 1 unit | 41C |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | |
| 20 | 24 DC | **3RF2120-2AA04** | | 1 | 1 unit | 41C |
| 50[2] | | **3RF2150-2AA04** | | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-2AA04** | | 1 | 1 unit | 41C |
| 50[2] | 24 AC/DC | **3RF2150-2AA14** | | 1 | 1 unit | 41C |
| 20 | 110 ... 230 AC | **3RF2120-2AA24** | | 1 | 1 unit | 41C |
| 50[2] | | **3RF2150-2AA24** | | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-2AA24** | | 1 | 1 unit | 41C |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| 20 | 4 ... 30 DC | **3RF2120-2AA45** | | 1 | 1 unit | 41C |
| **Zero-point switching · Blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| 50[2] | 24 DC | **3RF2150-2AA06** | | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-2AA06** | | 1 | 1 unit | 41C |
| 50[2] | 110 ... 230 AC | **3RF2150-2AA26** | | 1 | 1 unit | 41C |
| 90[2] | | **3RF2190-2AA26** | | 1 | 1 unit | 41C |

3RF2120-2AA02

1) The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

2) Please note that the version with spring-loaded terminals can only be used for a rated current of up to approx. 20 A and a conductor cross-section of 2.5 mm$^2$. Higher currents can be achieved by connecting two conductors per terminal.

Other rated control supply voltages on request.

Accessories, see page 6/127.

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| | Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Ring cable lug connection | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | A | V | Article No. | | | |
| **Zero-point switching, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | |
| 3RF2120-3AA02 | 20 | 24 DC | **3RF2120-3AA02** | 1 | 1 unit | 41C |
| | 50 | | **3RF2150-3AA02** | 1 | 1 unit | 41C |
| | 90 | | **3RF2190-3AA02** | 1 | 1 unit | 41C |
| | 20 | 110 ... 230 AC | **3RF2120-3AA22** | 1 | 1 unit | 41C |
| | 50 | | **3RF2150-3AA22** | 1 | 1 unit | 41C |
| | 90 | | **3RF2190-3AA22** | 1 | 1 unit | 41C |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | |
| | 20 | 24 DC | **3RF2120-3AA04** | 1 | 1 unit | 41C |
| | 50 | | **3RF2150-3AA04** | 1 | 1 unit | 41C |
| | 90 | | **3RF2190-3AA04** | 1 | 1 unit | 41C |
| | 20 | 110 ... 230 AC | **3RF2120-3AA24** | 1 | 1 unit | 41C |
| | 50 | | **3RF2150-3AA24** | 1 | 1 unit | 41C |
| | 90 | | **3RF2190-3AA24** | 1 | 1 unit | 41C |
| | 90 | 4 ... 30 DC | **3RF2190-3AA44** | 1 | 1 unit | 41C |
| **Zero-point switching · Blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| | 50 | 24 DC | **3RF2150-3AA06** | 1 | 1 unit | 41C |
| | 90 | | **3RF2190-3AA06** | 1 | 1 unit | 41C |
| | 50 | 110 ... 230 AC | **3RF2150-3AA26** | 1 | 1 unit | 41C |
| | 90 | | **3RF2190-3AA26** | 1 | 1 unit | 41C |

[1] The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

Other rated control supply voltages on request.

Accessories, see page 6/127.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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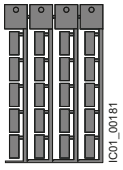
## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminal covers** | | | | | | |
| | | **Ring cable lug connection** | | | | |
| 3RF2900-3PA88 | **Terminal covers**<br>For 3RF21 solid-state relays with ring cable lug connection<br>With this terminal cover, degree of protection IP20 can be achieved on the front with a ring cable lug connection. It can also be used for screw terminals after simple adaptation. | **3RF2900-3PA88** | | 1 | 10 units | 41C |
| **Control connectors** | | | | | | |
| | | **Screw terminals** | | | | |
| 3RF2900-1TA88 | **Replacement control connectors**<br>For 3RF20 to 3RF22 solid-state relays<br>With screw terminals | **3RF2900-1TA88** | | 1 | 50 units | 41C |
| | | **Spring-loaded terminals** | | | | |
| 3RF2900-2TA88 | **Replacement control connectors**<br>For 3RF20 to 3RF22 solid-state relays<br>With spring-loaded terminals | **3RF2900-2TA88** | | 1 | 50 units | 41C |
| 3RF2900-2TB88 | **Control connectors**<br>For 3RF20 to 3RF22 solid-state relays<br>With spring-loaded terminals<br>With two clamping points per contact | **3RF2900-2TB88** | | 1 | 10 units | 41C |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdrivers**<br>For all SIRIUS devices<br>With spring-loaded terminals<br>Length approx. 200 mm,<br>size 3.0 mm x 0.5 mm,<br>titanium gray/black,<br>partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**<br>For SIRIUS devices[1] | | | | | |
| | 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| | 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | **Adhesive labels**<br>For SIRIUS devices | | | | | |
| | 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

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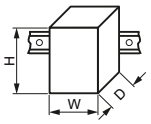
## Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16223/faq |

| | | | | |
|---|---|---|---|---|
| Type | | | **3RF20..-1....** | **3RF20..-4....** |
| Dimensions (W x H x D) |  | mm | 45 x 58 x 48 | 45 x 58 x 48 |
| **General data** | | | | |
| **Ambient temperature** | | | | |
| • During operation, derating from 40 °C | | °C | -25 ... +60 | |
| • During storage | | °C | -55 ... +80 | |
| **Installation altitude** | | m | 0 ... 1 000; derating from 1 000 | |
| **Shock resistance** according to IEC 60068-2-27 | | *g*/ms | 15/11 | |
| **Vibration resistance** according to IEC 60068-2-6 | | *g* | 2 | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | |
| **Electromagnetic compatibility** (EMC) | | | | |
| • Emitted interference | | | | |
| - Conducted interference voltage according to IEC 60947-4-3 | | | Class A for industrial applications | |
| - Emitted, high-frequency interference voltage according to IEC 60947-4-3 | | | Class B for residential, business and commercial applications | |
| • Interference immunity | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | | kV | Contact discharge 4; air discharge 8; behavior criterion 2 | |
| - Induced RF fields according to IEC 61000-4-6 | | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | |
| - Burst according to IEC 61000-4-4 | | kV | 2/5.0 kHz; behavior criterion 2 | |
| - Surge according to IEC 61000-4-5 | | kV | Conductor - ground 2; conductor - conductor 1; behavior criterion 2 | |
| **Mounting** | | | | |
| • Screws (not included in the scope of supply) | | | 2 x M4 | |
| • Tightening torque | | Nm | 1.5 | |
| **Connection type** | | | **Screw terminals** | **Spring-loaded terminals** |
| **Connection, main contacts** | | | | |
| • Conductor cross-sections | | | | |
| - Solid | | $mm^2$ | 2 x (1.5 ... 2.5)[1], 2 x (2.5 ... 6)[1] | -- |
| - Finely stranded with end sleeve | | $mm^2$ | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 6)[1], 1 x 10 | -- |
| - Solid or stranded, AWG cables | | AWG | 2 x (14 ... 10) | -- |
| • Terminal screw | | | M4 | -- |
| • Tightening torque | | Nm<br>lb.in | 2 ... 2.5<br>7 ... 10.3 | --<br>-- |
| **Connection, auxiliary/control contacts** | | | | |
| • Conductor cross-sections | | $mm^2$<br>AWG | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0)<br>20 ... 12 | 0.5 ... 2.5<br>20 ... 12 |
| • Stripped length | | mm | 7 | 10 |
| • Terminal screw | | | M3 | -- |
| • Tightening torque | | Nm<br>lb.in | 0.5 ... 0.6<br>4.5 ... 5.3 | --<br>-- |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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| Type | $I_{max}$ [1] at $R_{thha}/T_u$ = 40 °C | | $I_e$ according to IEC 60947-4-3 at $R_{thha}/T_u$ = 40 °C | | $I_e$ according to UL/CSA at $R_{thha}/T_u$ = 50 °C | | Power loss at $I_{max}$ | Minimum load current | Off-state current |
|---|---|---|---|---|---|---|---|---|---|
| | A | K/W | A | K/W | A | K/W | W | A | mA |
| **Main circuit** | | | | | | | | | |
| **3RF2020-1.A..** | 20 | 2.00 | 20 | 1.70 | 20 | 1.30 | 28.6 | 0.1 | 10 |
| **3RF2030-1.A..** | 30 | 1.45 | 30 | 1.45 | 30 | 1.25 | 44.2 | 0.5 | 10 |
| **3RF2050-1.A..** | 50 | 0.85 | 50 | 0.85 | 50 | 0.70 | 66 | 0.5 | 10 |
| **3RF2070-1.A..** | 70 | 0.50 | 50 | 1.15 | 50 | 1.00 | 94 | 0.5 | 10 |
| **3RF2090-1.A..** | 88 | 0.55 | 50 | 1.40 | 50 | 1.00 | 118 | 0.5 | 10 |

1) The current $I_{max}$ provides information about the performance of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

Note:

The required heat sinks for the corresponding load currents can be determined from the characteristic curves (see page 6/120, "More Information"). The minimum thickness values for the mounting surface must be observed.

| Type | Rated peak withstand current $I_{tsm}$ | $I^2t$ value |
|---|---|---|
| | A | $A^2s$ |
| **Main circuit** | | |
| **3RF2020-1.A..** | 200 | 200 |
| **3RF2030-1.A.2** | 300 | 450 |
| **3RF2030-1.A.4** | 300 | 450 |
| **3RF2030-1.A.6** | 400 | 800 |
| **3RF2050-1.A..** | 600 | 1 800 |
| **3RF2070-1.A.2** | 1 200 | 7 200 |
| **3RF2070-1.A.4** | 1 200 | 7 200 |
| **3RF2070-1.A.5** | 1 200 | 7 200 |
| **3RF2070-1.A.6** | 1 150 | 6 600 |
| **3RF2090-1.A..** | 1 150 | 6 600 |

| Type | | **3RF20.0-1.A.2** | **3RF20.0-1.A.4** | **3RF20.0-1.A.5** | **3RF20.0-1.A.6** |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Rated operational voltage $U_e$** | V AC | 24 ... 230 | 48 ... 460 | 48 ... 600 | |
| • Operating range | V AC | 20 ... 253 | 40 ... 506 | 40 ... 660 | |
| • Rated frequency | Hz | 50/60 ± 10% | | | |
| **Rated insulation voltage $U_i$** | V | 600 | | | |
| **Blocking voltage** | V | 800 | 1 200 | | 1 600 |
| **Rate of voltage rise** | V/µs | 1 000 | | | |

| Type | | **3RF20.0-1.A0.** | **3RF20.0-1.A2.** | **3RF20.0-1.A4.** |
|---|---|---|---|---|
| **Control circuit** | | | | |
| **Method of operation** | | DC operation | AC operation | DC operation |
| **Rated control supply voltage $U_s$** | V | 24 | 110 ... 230 | 4 … 30 |
| **Rated frequency** of the control supply voltage | Hz | -- | 50/60 ± 10% | -- |
| **Control supply voltage, max.** | V | 30 | 253 | 30 |
| **Typical actuating current** | mA | 15 | 15 | 15 |
| **Response voltage** | V | 15 | 90 | 4 |
| **Drop-out voltage** | V | 5 | 40 | 1 |
| **Operating times** | | | | |
| • ON-delay | ms | 1 + max. one half-wave[1] | 40 + max. one half-wave[1] | 1 + max. one half-wave[1] |
| • OFF-delay | ms | 1 + max. one half-wave | 40 + max. one half-wave | 1 + max. one half-wave |

1) Only for zero-point switching devices.

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## Selection and ordering data

***1-phase solid-state relays (without heat sink) with a width of 45 mm***

3RF2020-1AA02

| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| A | V | Article No. | | | |
| **Zero-point switching, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | |
| 20 | 24 DC | **3RF2020-1AA02** | 1 | 1 unit | 41C |
| 30 | | **3RF2030-1AA02** | 1 | 1 unit | 41C |
| 50 | | **3RF2050-1AA02** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2070-1AA02** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2090-1AA02** | 1 | 1 unit | 41C |
| 20 | 110 ... 230 AC | **3RF2020-1AA22** | 1 | 1 unit | 41C |
| 30 | | **3RF2030-1AA22** | 1 | 1 unit | 41C |
| 50 | | **3RF2050-1AA22** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2070-1AA22** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2090-1AA22** | 1 | 1 unit | 41C |
| 20 | 4 ... 30 DC | **3RF2020-1AA42** | 1 | 1 unit | 41C |
| 30 | | **3RF2030-1AA42** | 1 | 1 unit | 41C |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | |
| 20 | 24 DC | **3RF2020-1AA04** | 1 | 1 unit | 41C |
| 30 | | **3RF2030-1AA04** | 1 | 1 unit | 41C |
| 50 | | **3RF2050-1AA04** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2070-1AA04** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2090-1AA04** | 1 | 1 unit | 41C |
| 20 | 110 ... 230 AC | **3RF2020-1AA24** | 1 | 1 unit | 41C |
| 30 | | **3RF2030-1AA24** | 1 | 1 unit | 41C |
| 50 | | **3RF2050-1AA24** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2070-1AA24** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2090-1AA24** | 1 | 1 unit | 41C |
| 50 | 4 ... 30 DC | **3RF2050-1AA44** | 1 | 1 unit | 41C |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | |
| 20 | 4 ... 30 DC | **3RF2020-1AA45** | 1 | 1 unit | 41C |
| 50 | | **3RF2050-1AA45** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2070-1AA45** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2090-1AA45** | 1 | 1 unit | 41C |
| **Zero-point switching · Blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | |
| 30 | 24 DC | **3RF2030-1AA06** | 1 | 1 unit | 41C |
| 50 | | **3RF2050-1AA06** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2070-1AA06** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2090-1AA06** | 1 | 1 unit | 41C |
| 30 | 110 ... 230 AC | **3RF2030-1AA26** | 1 | 1 unit | 41C |
| 50 | | **3RF2050-1AA26** | 1 | 1 unit | 41C |
| 70[2] | | **3RF2070-1AA26** | 1 | 1 unit | 41C |
| 90[2] | | **3RF2090-1AA26** | 1 | 1 unit | 41C |
| **Instantaneous switching, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | |
| 30 | 24 DC | **3RF2030-1BA04** | 1 | 1 unit | 41C |

[1] The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

[2] Please note that this version with an M4 screw connection can only be used for a rated current of up to approx. 50 A and a conductor cross-section of 10 mm$^2$.

Accessories, see page 6/127.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | **Screw terminals + spring-loaded terminals** (control current side) | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | A | V | Article No. | Price per PU | | | |
| **Zero-point switching, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | |
| 3RF2050-4AA02 | 50 | 24 DC | **3RF2050-4AA02** | | 1 | 1 unit | 41C |

[1] The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

Accessories, see page 6/127.

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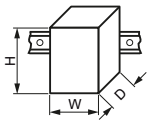
## Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16223/faq |

| Type | | | 3RF22..-1.... | 3RF22..-2.... | 3RF22..-3.... |
|---|---|---|---|---|---|
| Dimensions (W x H x D) |  | mm | 45 x 95 x 47 | 45 x 95 x 47 | 45 x 95 x 47 |



| General data | | | | |
|---|---|---|---|---|
| **Ambient temperature** | | | | |
| • During operation, derating from 40 °C | °C | -25 ... +60 | | |
| • During storage | °C | -55 ... +80 | | |
| **Installation altitude** | m | 0 ... 1 000; > 1 000 ask Technical Support | | |
| **Shock resistance** according to IEC 60068-2-27 | *g*/ms | 15/11 | | |
| **Vibration resistance** according to IEC 60068-2-6 | *g* | 2 | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | IP00 |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | | -- |
| **Insulation strength** at 50/60 Hz (main/control circuit to floor) | V rms | 4 000 | | |
| **Electromagnetic compatibility** (EMC) | | | | |
| • Emitted interference | | | | |
| - Conducted interference voltage according to IEC 60947-4-3 | | Class A for industrial applications[1] | | |
| • Interference immunity | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV | Contact discharge 4; air discharge 8; behavior criterion 2 | | |
| - Induced RF fields according to IEC 61000-4-6 | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | | |
| - Burst according to IEC 61000-4-4 | kV | 2/5.0 kHz; behavior criterion 2 | | |
| - Surge according to IEC 61000-4-5 | kV | Conductor - ground 2; conductor - conductor 1; behavior criterion 2 | | |
| **Mounting** | | | | |
| • Screws (not included in the scope of supply) | | 2 x M4 | | |
| • Tightening torque | Nm | 1.5 | | |
| **Connection type** | | Screw terminals | Spring-loaded terminals | Ring cable lug connection |
| **Connection, main contacts** | | | | |
| • Conductor cross-sections | | | | |
| - Solid | $mm^2$ | 2 x (1.5 ... 2.5)[2], 2 x (2.5 ... 6)[2] | 2 x (0.5 ... 2.5) | -- |
| - Finely stranded with end sleeve | $mm^2$ | 2 x (1 ... 2.5)[2], 2 x (2.5 ... 6)[2], 1 x 10 | 2 x (0.5 ... 1.5) | -- |
| - Finely stranded without end sleeve | $mm^2$ | -- | 2 x (0.5 ... 2.5) | -- |
| - Solid or stranded, AWG cables | AWG | 2 x (14 ... 10) | 2 x (18 ... 14) | -- |
| • Stripped length | mm | 10 | 10 | -- |
| • Terminal screws | | M4 | -- | M5 |
| - Tightening torque, ∅ 5 ... 6 mm, PZ 2 | Nm<br>lb.in | 2 ... 2.5<br>18 ... 22 | | 2 ... 2.5<br>18 ... 22 |
| • Cable lugs | | | | |
| - According to DIN 46234 | | -- | -- | 5-2.5 ... 5-25 |
| - According to JIS C 2805 | | -- | -- | R 2-5 ... R 14-5 |
| - Width, maximum | mm | -- | -- | 12 |
| **Connection, auxiliary/control contacts** | | | | |
| • Conductor cross-sections, with or without end sleeve | mm<br>AWG | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0)<br>20 ... 12 | 0.5 ... 2.5<br>20 ... 12 | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0)<br>20 ... 12 |
| • Stripped length | mm | 7 | 10 | 7 |
| • Terminal screw | | M3 | -- | M3 |
| - Tightening torque, ∅ 3.5 mm, PZ 1 | Nm<br>lb.in | 0.5 ... 0.6<br>4.5 ... 5.3 | | 0.5 ... 0.6<br>4.5 ... 5.3 |

1) These products were built as Class A devices. The use of these devices in residential areas could result in radio interference. In this case it may be required to introduce additional interference suppression measures.

2) If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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| Type | $I_{max}$ [1] at $R_{thha}/T_u$ = 40 °C | | $I_e$ according to IEC 60947-4-3 at $R_{thha}/T_u$ = 40 °C | | $I_e$ according to UL/CSA at $R_{thha}/T_u$ = 50 °C | | Power loss at $I_{max}$ | Minimum load current | Max. off-state current |
|---|---|---|---|---|---|---|---|---|---|
| | A | K/W | A | K/W | A | K/W | W | A | mA |
| **Main circuit** | | | | | | | | | |
| **3RF2230-1AB..** | 30 | 0.80 | 30 | 0.80 | 30 | 0.65 | 81 | 0.5 | 10 |
| **3RF2230-2AB..** | | | 20 | 1.36 | 20 | 1.15 | | | |
| **3RF2230-3AB..** | | | 30 | 0.80 | 30 | 0.65 | | | |
| **3RF2255-1AB..** | 55 | 0.25 | 50 | 0.35 | 50 | 0.15 | 151 | 0.5 | 10 |
| **3RF2255-2AB..** | | | 20 | 1.83 | 20 | 1.58 | | | |
| **3RF2255-3AB..** | | | 55 | 0.25 | 55 | 0.15 | | | |
| **3RF2230-1AC..** | 30 | 0.45 | 30 | 0.45 | 30 | 0.35 | 122 | 0.5 | 10 |
| **3RF2230-2AC..** | | | 20 | 0.86 | 20 | 0.72 | | | |
| **3RF2230-3AC..** | | | 30 | 0.45 | 30 | 0.35 | | | |
| **3RF2255-1AC..** | 55 | 0.14 | 50 | 0.20 | 50 | 0.12 | 226 | 0.5 | 10 |
| **3RF2255-2AC..** | | | 20 | 1.19 | 20 | 1.02 | | | |
| **3RF2255-3AC..** | | | 55 | 0.14 | 55 | 0.12 | | | |

[1] The current $I_{max}$ provides information about the performance of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

Note:

The required heat sinks for the corresponding load currents can be determined from the characteristic curves (see page 6/120, "More Information"). The minimum thickness values for the mounting surface must be observed.

| Type | Rated peak withstand current $I_{tsm}$ | $I^2t$ value |
|---|---|---|
| | A | $A^2s$ |
| **Main circuit** | | |
| **3RF2230-....5** | 300 | 450 |
| **3RF2255-....5** | 600 | 1 800 |

| Type | | 3RF22..-.AB.5 | 3RF22..-.AC.5 |
|---|---|---|---|
| **Main circuit** | | | |
| **Controlled phases** | | 2-phase | 3-phase |
| **Rated operational voltage $U_e$** | V AC | 48 ... 600 | |
| • Operating range | V AC | 40 ... 660 | |
| • Rated frequency | Hz | 50/60 ± 10% | |
| **Rated insulation voltage $U_i$** | V | 600 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | |
| **Blocking voltage** | V | 1 200 | |
| **Rate of voltage rise** | V/µs | 1 000 | |

| Type | | 3RF22..-.A.3. | 3RF22..-.A.4. |
|---|---|---|---|
| **Control circuit** | | | |
| **Method of operation** | | AC operation | DC operation |
| **Rated control supply voltage $U_s$** | V | 110 | 4 ... 30 |
| **Rated frequency** of the control supply voltage | Hz | 50/60 ± 10% | -- |
| **Control supply voltage, max.** | V | 121 | 30 |
| **Typical actuating current** | mA | 15 | 30 |
| **Response voltage** | V | 90 | 4 |
| **Drop-out voltage** | V | < 40 | 1 |
| **Operating times** | | | |
| • ON-delay | ms | 40 + max. one half-wave | 1 + max. one half-wave |
| • OFF-delay | ms | 40 + max. one half-wave | 1 + max. one half-wave |

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## Selection and ordering data

| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| A | V | Article No. | Price per PU | | | |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| ***2-phase controlled*** | | | | | | |
| 30 | 110 AC | **3RF2230-1AB35** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-1AB35** | | 1 | 1 unit | 41C |
| 30 | 4 ... 30 DC | **3RF2230-1AB45** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-1AB45** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | |
| 30 | 110 AC | **3RF2230-1AC35** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-1AC35** | | 1 | 1 unit | 41C |
| 30 | 4 ... 30 DC | **3RF2230-1AC45** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-1AC45** | | 1 | 1 unit | 41C |

3RF2230-1AB35

1) The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

2) Please note that the version with an M4 screw connection can only be used for a rated current of up to approx. 50 A and a conductor cross-section of 10 mm$^2$.
Please use the 3RF22 solid-state relays with ring cable lug connections for these currents.

Accessories, see page 6/127.

| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Spring-loaded terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| A | V | Article No. | Price per PU | | | |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| ***2-phase controlled*** | | | | | | |
| 30[2] | 4 ... 30 DC | **3RF2230-2AB45** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-2AB45** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | |
| 30[2] | 4 ... 30 DC | **3RF2230-2AC45** | | 1 | 1 unit | 41C |
| 55[2] | | **3RF2255-2AC45** | | 1 | 1 unit | 41C |

3RF2230-2AB45

1) The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

2) Please note that the version with spring-loaded terminals can only be used for a rated current of up to approx. 20 A and a conductor cross-section of 2.5 mm$^2$. Higher currents can be achieved by connecting two conductors per terminal.

Accessories, see page 6/127.

| Type current/ performance capacity[1] | Rated control supply voltage $U_s$ | Ring cable lug connection | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| A | V | Article No. | Price per PU | | | |
| **Zero-point switching, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | |
| ***2-phase controlled*** | | | | | | |
| 30 | 4 ... 30 DC | **3RF2230-3AB45** | | 1 | 1 unit | 41C |
| 55 | | **3RF2255-3AB45** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | |
| 30 | 4 ... 30 DC | **3RF2230-3AC45** | | 1 | 1 unit | 41C |
| 55 | | **3RF2255-3AC45** | | 1 | 1 unit | 41C |

3RF2230-3AB45

1) The type current provides information about the performance capacity of the solid-state relay. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and cooling conditions.

Accessories, see page 6/127.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

***Solid-state contactors (with integrated heat sink)***

The solid-state contactors are available in two different versions:

- 3RF23 1-phase solid-state contactors: Their compact design with optimized heat sink enables small complete units with currents up to 70 A.
- 3RF24 3-phase solid-state contactors: Their compact design with optimized heat sink enables the provision of small complete units with currents up to 50 A.

The complete units consist of a solid-state relay plus optimized heat sink, and are therefore ready to use. They offer defined rated currents to make selection as easy as possible. Like all of our solid-state switching devices, one of their particular advantages is their compact and space-saving design.

Thanks to optimized power electronics, versions of 3RF2310 to 3RF2330 solid-state contactors can be mounted side-by-side without derating, see product information or product data sheets for the individual products.

Note:

Due to a special mounting foot for versions 3RF2310 to 3RF2330 and 3RF2410, snapping onto grounded DIN rails or mounting on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.
With other types of mounting, an additional ground connection to the heat sink can be established by means of a screw terminal connection.

***3RF23 1-phase solid-state contactors with heat sink***

Version for resistive loads "zero-point switching"

This standard version is often used for switching heaters on and off.

Version for inductive loads "instantaneous switching"

In this version, the solid-state contactor is specifically matched to inductive loads. Whether it is a matter of frequent actuation of the valves in a filling plant or starting and stopping small operating mechanisms in packet distribution systems, operation is carried out safely and noiselessly.

Special "low noise" version

Thanks to a special control circuit, this special version can be used in public networks up to 16 A without any additional measures such as interference suppressor filters. As a result, in terms of emitted interference, it conforms to limit value curve class B according to IEC 60947-4-3.

Special "short-circuit-proof" version

Skillful matching of the power semiconductor with the performance capacity of the solid-state contactor means that "short-circuit strength" can be achieved with a standard miniature circuit breaker. In combination with a B MCB or a conventional line protection fuse, the result is a short-circuit-proof feeder.

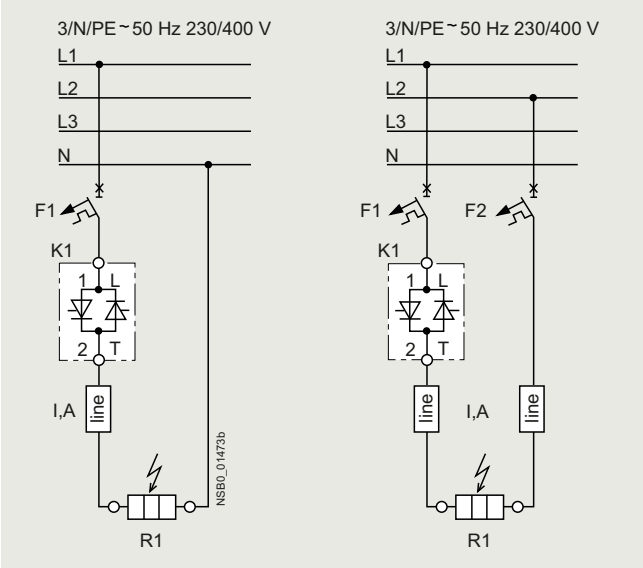
In order to achieve problem-free short-circuit protection by means of miniature circuit breakers, however, certain constraints must be observed. As the magnitude and duration of the short-circuit current are determined not only by the short-circuit breaking response of the miniature circuit breaker but also the properties of the wiring system, such as the internal resistance of the input to the network and damping by switching devices and cables, particular attention must also be paid to these parameters. The necessary cable lengths are therefore shown for the main factor, the line resistance, in the following table.

In systems that have high voltage peaks or at voltages of 575 V and higher, use of versions with a blocking voltage of 1 600 V is recommended.

The following miniature circuit breakers with a B characteristic and 10 kA or 6 kA breaking capacity protect the 3RF23..-.DA.. solid-state contactors in the event of short circuits on the load and the specified conductor cross-sections and lengths:

| Rated current of the miniature circuit breaker | Example of type[1)] | Max. conductor cross-section | Minimum cable length from contactor to load |
|---|---|---|---|
| 6 A | 5SY4106-6 | 1 mm$^2$ | 5 m |
| 10 A | 5SY4110-6 | 1.5 mm$^2$ | 8 m |
| 16 A | 5SY4116-6 | 1.5 mm$^2$ | 12 m |
| | | 2.5 mm$^2$ | 20 m |
| 20 A | 5SY4120-6 | 2.5 mm$^2$ | 20 m |
| 25 A | 5SY4125-6 | 2.5 mm$^2$ | 26 m |

1) The miniature circuit breakers can be used up to a maximum rated voltage of 480 V!




Solid-state contactor protection

The setup and installation above can also be used for the solid-state relays with an $I^2t$ value of at least 6 600 A$^2$s.

Function modules

The 3RF23 solid-state contactors can be expanded with various function modules for individual adaptation to applications, see page 6/150 onwards.

***3RF24 3-phase solid-state contactors with heat sink***

The 3-phase solid-state contactors for resistive loads up to 50 A are available with

- 2-phase control (suitable in particular for circuits without connection to the neutral conductor) and
- 3-phase control (suitable for star circuits with connection to the neutral conductor or for applications in which the system requires all phases to be switched)

The converter function module can be snapped onto both versions for the simple power control of loads in a three-phase network by means of analog signals.

Note:

Checking the correct solid-state contactor size with the aid of the rated current diagram, taking account of the installation conditions, is recommended.

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## Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16223/faq |

| Type | | 3RF23..-.A... | 3RF23..-.B... | 3RF23..-.C... | 3RF23..-.D... |
|---|---|---|---|---|---|
| Dimensions (W x H x D) | | See page 6/137 | | | |
| **General data** | | | | | |
| **Ambient temperature** | | | | | |
| • During operation, derating from 40 °C | °C | -25 ... +60 | | | |
| • During storage | °C | -55 ... +80 | | | |
| **Installation altitude** | m | 0 ... 1 000; derating from 1 000 | | | |
| **Shock resistance** according to IEC 60068-2-27 | *g*/ms | 15/11 | | | |
| **Vibration resistance** according to IEC 60068-2-6 | *g* | 2 | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | | | |
| • Screw terminals and spring-loaded terminals | | IP20 | | | |
| • Ring cable lug connection | | IP00 (IP20 when using the 3RF2900-3PA88 terminal cover) | | | |
| **Touch protection on the front** according to IEC 60529 | | | | | |
| • Screw terminals and spring-loaded terminals | | Finger-safe for vertical touching from the front | | | |
| • Ring cable lug connection | | Finger-safe for vertical touching from the front when using the 3RF2900-3PA88 terminal cover | | | |
| **Electromagnetic compatibility (EMC)** | | | | | |
| • Emitted interference according to IEC 60947-4-3 | | | | | |
| - Conducted interference voltage | | Class A for industrial applications | | Class A for industrial applications; Class B for residential, business and commercial applications up to 16 A, AC-51 low noise | Class A for industrial applications |
| - Emitted, high-frequency interference voltage | | Class B for residential, business and commercial applications | | | |
| • Interference immunity | | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV | Contact discharge 4; air discharge 8; behavior criterion 2 | | | |
| - Induced RF fields according to IEC 61000-4-6 | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | | | |
| - Burst according to IEC 61000-4-4 | kV | 2/5.0 kHz; behavior criterion 2 | | | |
| - Surge according to IEC 61000-4-5 | kV | Conductor - ground 2; conductor - conductor 1; behavior criterion 2 | | | |

| Type | | 3RF23..-1.... | 3RF23..-2.... | 3RF23..-3.... |
|---|---|---|---|---|
| **General data** | | | | |
| **Connection type** | | **Screw terminals** | **Spring-loaded terminals** | **Ring cable lug connection** |
| **Connection, main contacts** | | | | |
| • Conductor cross-section | | | | |
| - Solid | $mm^2$ | 2 x (1.5 ... 2.5)[1], 2 x (2.5 ... 6)[1] | 2 x (0.5 ... 2.5) | -- |
| - Finely stranded with end sleeve | $mm^2$ | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 6)[1], 1 x 10 | 2 x (0.5 ... 1.5) | -- |
| - Finely stranded without end sleeve | $mm^2$ | -- | 2 x (0.5 ... 2.5) | -- |
| - Solid or stranded, AWG cables | AWG | 2 x (14 ... 10) | 2 x (18 ... 14) | -- |
| • Terminal screws | | M4 | -- | M5 |
| • Tightening torque | Nm | 2 ... 2.5 | -- | 2 ... 2.5 |
| | lb.in | 7 ... 10.3 | -- | 7 ... 10.3 |
| • Cable lugs | | | | |
| - According to DIN 46234 | | -- | -- | 5-2.5, 5-6, 5-10, 5-16, 5-25 |
| - According to JIS C 2805 | | -- | -- | R 2-5, R 5.5-5, R 8-5, R 14-5 |
| - Width, maximum | mm | -- | -- | 12 |
| **Connection, auxiliary/control contacts** | | | | |
| • Conductor cross-section | mm | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) | 0.5 ... 2.5 | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) |
| | AWG | 20 ... 12 | 20 ... 12 | 20 ... 12 |
| • Stripped length | mm | 7 | 10 | 7 |
| • Terminal screw | | M3 | -- | M3 |
| • Tightening torque | Nm | 0.5 ... 0.6 | -- | 0.5 ... 0.6 |
| | lb.in | 4.5 ... 5.3 | -- | 4.5 ... 5.3 |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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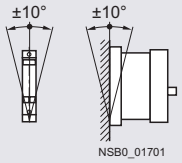
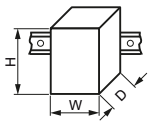
| Type | | 3RF23..-1.... | 3RF23..-2.... | 3RF23..-3.... |
|---|---|---|---|---|
| **General data** | | | | |
| **Connection type** | | Screw terminals | Spring-loaded terminals | Ring cable lug connection |
| **Grounding studs** | | Optional, see also note on page 6/135 about the special mounting foot for safe grounding on DIN rails for versions 3RF2310 to 3RF2330 | | |
| • Size (standard screw) | | M5 | | |
| **Permissible mounting position** | |   | | |

| Type | | 3RF23..-....2 | 3RF23..-....4 | 3RF23..-....5 | 3RF23..-....6 |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Rated operational voltage $U_e$** | V AC | 24 ... 230 | 48 ... 460 | 48 ... 600 | |
| • Operating range | V AC | 20 ... 253 | 40 ... 506 | 40 ... 660 | |
| • Rated frequency | Hz | 50/60 ± 10% | | | |
| **Rated insulation voltage $U_i$** | V | 600 | | | |
| **Blocking voltage** | V | 800 | 1 200 | | 1 600 |
| **Rate of voltage rise** | V/µs | 1 000 | | | |

| Type | | 3RF23..-...0. | 3RF23..-...1. | | 3RF23..-...2. | 3RF23..-...4. |
|---|---|---|---|---|---|---|
| **Control circuit** | | | | | | |
| **Method of operation** | | DC operation | AC/DC operation | | AC operation | DC operation |
| **Rated control supply voltage $U_s$** | V | 24 DC | 24 AC | 24 DC | 110 ... 230 AC | 4 ... 30 DC |
| **Rated frequency** of the control supply voltage | Hz | -- | 50/60 ± 10% | -- | 50/60 ± 10% | -- |
| **Actuating voltage, max.** | V | 30 | 26.5 AC | 30 DC | 253 | 30 |
| **Typical actuating current** | mA | 15/low power: 9[1] | 20 | 20 | 15 | 20 |
| **Response voltage** | V | 15 | 14 AC | 15 DC | 90 | 4 |
| **Drop-out voltage** | V | 5 | 5 AC | 5 DC | 40 | 1 |
| **Operating times** | | | | | | |
| • ON-delay | ms | 1 + max. one half-wave[2] | 10 + max. one half-wave[2] | | 40 + max. one half-wave[2] | 1 + max. one half-wave[2] |
| • OFF-delay | ms | 1 + max. one half-wave | 15 + max. one half-wave | | 40 + max. one half-wave | 1 + max. one half-wave |

[1] Applies to the "low power" version 3RF23..-.AA..-**0KN0**.
[2] Only for zero-point switching devices.

| Type | **Type current/performance capacity**[1] $I_{AC-51}$ | **Dimensions (W x H x D)** incl. heat sink |
|---|---|---|
| | |   |
| | A | mm |
| **Main circuit** | | |
| **3RF2310-.AA..** | 10.5 | 22.5 x 95 x 84 |
| **3RF2320-.AA..**<br>**3RF2320-.CA..**<br>**3RF2320-.DA..** | 20 | 22.5 x 95 x 116 |
| **3RF2330-.AA..**<br>**3RF2330-.CA..** | 30 | 45 x 95 x 131.5 |
| **3RF2330-.DA..** | | 22.5 x 95 x 116 |
| **3RF2340-.AA..**<br>**3RF2340-.DA..** | 40 | 67 x 100 x 136 |
| **3RF2350-.AA..** | 50 | 67 x 100 x 136 |
| **3RF2370-.AA..** | 70 | 80 x 100 x 157 |

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the installation conditions.

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| Type | Type current AC-51/performance capacity[1] | | | Power loss at $I_{max}$ | Minimum load current | Off-state current | Rated peak withstand current $I_{tsm}$ | $I^2t$ value |
|---|---|---|---|---|---|---|---|---|
| | at $I_{max}$ at 40 °C | according to IEC 60947-4-3 at 40 °C | according to UL/CSA at 50 °C | | | | | |
| | A | A | A | W | A | mA | A | $A^2s$ |
| **Main circuit** | | | | | | | | |
| **3RF2310-.AA.2 3RF2310-.AA.4 3RF2310-.AA.5** | 10.5 | 7.5 | 9.6 | 11 | 0.1 | 10 | 200 | 200 |
| **3RF2310-.AA.6** | | | | | | | 400 | 800 |
| **3RF2320-.AA.2 3RF2320-.AA.4 3RF2320-.AA.5 3RF2320-.AA.6** | 20 | 13.2 | 17.6 | 20 | 0.5 | 10 | 600 | 1 800 |
| **3RF2320-.CA.2 3RF2320-.CA.4** | | | | | | 25 | 600 | 1 800 |
| **3RF2320-.DA.2 3RF2320-.DA.4** | | | | | | 10 | 1 150 | 6 600 |
| **3RF2330-.AA.2 3RF2330-.AA.4 3RF2330-.AA.5 3RF2330-.AA.6** | 30 | 22 | 27 | 33 | 0.5 | 10 | 600 | 1 800 |
| **3RF2330-.CA.2** | | | | | | 25 | 600 | 1 800 |
| **3RF2330-.DA.4** | | 18.5 | 26 | 33 | 0.5 | 10 | 1 150 | 6 600 |
| **3RF2340-.AA.2 3RF2340-.AA.4 3RF2340-.AA.5** | 40 | 33 | 36 | 44 | 0.5 | 10 | 1 200 | 7 200 |
| **3RF2340-.AA.6** | | | | | | | 1 150 | 6 600 |
| **3RF2340-.DA.4** | | 33 | 30 | 44 | 0.5 | 10 | 1 150 | 6 600 |
| **3RF2350-.AA.2 3RF2350-.AA.4 3RF2350-.AA.5 3RF2350-.AA.6** | 50 | 36 | 45 | 54 | 0.5 | 10 | 1 150 | 6 600 |
| **3RF2370-.AA.2 3RF2370-.AA.4 3RF2370-.AA.5 3RF2370-.AA.6** | 70 | 70 | 62 | 83 | 0.5 | 10 | 1 150 | 6 600 |

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the installation conditions.

| Type | Type current AC-51/performance capacity[1] | | | Type current AC-15/ performance capacity[1] | | Power loss at $I_{max}$ | Minimum load current | Off-state current | Rated peak withstand current $I_{tsm}$ | $I^2t$ value |
|---|---|---|---|---|---|---|---|---|---|---|
| | at $I_{max}$ at 40 °C | according to IEC 60947-4-3 at 40 °C | according to UL/CSA at 50 °C | 10 x $I_e$ for 60 ms | Parameters | | | | | |
| | A | A | A | A | | W | A | mA | A | $A^2s$ |
| **Main circuit** | | | | | | | | | | |
| **3RF2310-.BA.2 3RF2310-.BA.4** | 10.5 | 7.5 | 9.6 | 6 | 1 200 1/h 50% ON period | 11 | 0.1 | 10 | 200 | 200 |
| **3RF2310-.BA.6** | | | | | | | | | 400 | 800 |
| **3RF2320-.BA.2 3RF2320-.BA.4 3RF2320-.BA.6** | 20 | 13.2 | 17.6 | 12 | 1 200 1/h 50% ON period | 20 | 0.5 | 10 | 600 | 1 800 |
| **3RF2330-.BA.2 3RF2330-.BA.4 3RF2330-.BA.6** | 30 | 22 | 27 | 15 | 1 200 1/h 50% ON period | 33 | 0.5 | 10 | 600 | 1 800 |
| **3RF2340-.BA.2 3RF2340-.BA.4** | 40 | 33 | 36 | 20 | 1 200 1/h 50% ON period | 44 | 0.5 | 10 | 1 200 | 7 200 |
| **3RF2340-.BA.6** | | | | | | | | | 1 150 | 6 600 |
| **3RF2350-.BA.2 3RF2350-.BA.4 3RF2350-.BA.6** | 50 | 36 | 45 | 25 | 1 200 1/h 50% ON period | 54 | 0.5 | 10 | 1 150 | 6 600 |
| **3RF2370-.BA.2 3RF2370-.BA.4 3RF2370-.BA.6** | 70 | 70 | 62 | 27.5 | 1 200 1/h 50% ON period | 83 | 0.5 | 10 | 1 150 | 6 600 |

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the installation conditions.

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## Selection and ordering data

### *Selection notes*

The solid-state contactors are selected on the basis of details of the network, the load and the ambient conditions. As the solid-state contactors are already equipped with an optimally matched heat sink, the selection process is considerably simpler than that for solid-state relays.

The following procedure is recommended:

- Determine the rated current of the load and the mains voltage
- Select a solid-state contactor with the same or higher rated current than the load

| | Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | Screw terminals ⏚ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | A | V | | | | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | | |
| 3RF2310-1 | 10.5 | 24 DC | ✓ | **3RF2310-1AA02** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-1AA02** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1AA02** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-1AA02** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-1AA02** | | 1 | 1 unit | 41C |
| | 20 | 24 DC low power | ✓ | **3RF2320-1AA02-0KN0** | | 1 | 1 unit | 41C |
| | 10.5 | 24 AC/DC | ✓ | **3RF2310-1AA12** | | 1 | 1 unit | 41C |
| | 10.5 | 110 ... 230 AC | ✓ | **3RF2310-1AA22** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-1AA22** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1AA22** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-1AA22** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-1AA22** | | 1 | 1 unit | 41C |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | | |
| 3RF2320-1 | 10.5 | 24 DC | ✓ | **3RF2310-1AA04** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-1AA04** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1AA04** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-1AA04** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-1AA04** | | 1 | 1 unit | 41C |
| | 10.5 | 24 DC low power | ✓ | **3RF2310-1AA04-0KN0** | | 1 | 1 unit | 41C |
| | 10.5 | 24 AC/DC | ✓ | **3RF2310-1AA14** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-1AA14** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1AA14** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-1AA14** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-1AA14** | | 1 | 1 unit | 41C |
| | 10.5 | 110 ... 230 AC | ✓ | **3RF2310-1AA24** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-1AA24** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1AA24** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-1AA24** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-1AA24** | | 1 | 1 unit | 41C |
| | 10.5 | 4 ... 30 DC | ✓ | **3RF2310-1AA44** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-1AA44** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1AA44** | | 1 | 1 unit | 41C |

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the installation conditions.
For derating characteristic curves, see page 6/120, "More information".

Other rated control supply voltages on request.

Accessories, see page 6/145.

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| | Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | A | V | | Article No. / Price per PU | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | |
| | 20 | 110 DC | ✓ | **3RF2320-1AA65** | 1 | 1 unit | 41C |
| | 30 | 110 ... 230 AC | ✓ | **3RF2330-1AA25** | 1 | 1 unit | 41C |
| | 10.5 | 4 ... 30 DC | ✓ | **3RF2310-1AA45** | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-1AA45** | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1AA45** | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-1AA45** | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-1AA45** | 1 | 1 unit | 41C |
| **Zero-point switching · Integrated heat sink, blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | |
| 3RF2330-1 | 10.5 | 24 DC | ✓ | **3RF2310-1AA06** | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-1AA06** | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1AA06** | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-1AA06** | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-1AA06** | 1 | 1 unit | 41C |
| | 10.5 | 110 ... 230 AC | ✓ | **3RF2310-1AA26** | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-1AA26** | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1AA26** | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-1AA26** | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-1AA26** | 1 | 1 unit | 41C |
| **Low noise[2], zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | |
| 3RF2320-1 | 20 | 24 DC | ✓ | **3RF2320-1CA02** | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1CA02** | 1 | 1 unit | 41C |
| | 20 | 110 ... 230 AC | ✓ | **3RF2320-1CA22** | 1 | 1 unit | 41C |
| **Low noise[2], zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | |
| | 20 | 24 DC | ✓ | **3RF2320-1CA04** | 1 | 1 unit | 41C |
| | 20 | 110 ... 230 AC | ✓ | **3RF2320-1CA24** | 1 | 1 unit | 41C |
| | 20 | 4 ... 30 DC | ✓ | **3RF2320-1CA44** | 1 | 1 unit | 41C |
| **Short-circuit-proof with B MCB · Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | |
| | 20 | 24 DC | ✓ | **3RF2320-1DA02** | 1 | 1 unit | 41C |
| | 20 | 110 ... 230 AC | ✓ | **3RF2320-1DA22** | 1 | 1 unit | 41C |
| **Short-circuit-proof with B MCB · Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | |
| 3RF2330-1 | 20 | 24 DC | ✓ | **3RF2320-1DA04** | 1 | 1 unit | 41C |
| | 40 | 24 DC low power | -- | **3RF2340-1DA04-0KN0** | 1 | 1 unit | 41C |
| | 20 | 110 ... 230 AC | ✓ | **3RF2320-1DA24** | 1 | 1 unit | 41C |
| | 20 | 4 ... 30 DC | ✓ | **3RF2320-1DA44** | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-1DA44** | 1 | 1 unit | 41C |
| | 30[3] | 24 DC | ✓ | **3RF2330-1DA06** | 1 | 1 unit | 41C |

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

1) The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the installation conditions.
For derating characteristic curves, see page 6/120, "More information".

2) See page 6/135.

3) Blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC

Other rated control supply voltages on request.

Accessories, see page 6/145.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Type current/ performance capacity[1] $I_{max}$ | Operational current $I_e$/AC-15[2] | Rated control supply voltage $U_s$ | Grounding | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | A | A | V | | | | | | |
| **Instantaneous switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | | | |
| 3RF2310-1 | 10.5 | 6 | 24 DC | ✓ | **3RF2310-1BA02** | | 1 | 1 unit | 41C |
| | 20 | 12 | | ✓ | **3RF2320-1BA02** | | 1 | 1 unit | 41C |
| | 30 | 15 | | ✓ | **3RF2330-1BA02** | | 1 | 1 unit | 41C |
| | 40 | 20 | | -- | **3RF2340-1BA02** | | 1 | 1 unit | 41C |
| | 50 | 25 | | -- | **3RF2350-1BA02** | | 1 | 1 unit | 41C |
| | 50 | 27.5 | | -- | **3RF2370-1BA02** | | 1 | 1 unit | 41C |
| | 10.5 | 6 | 110 ... 230 AC | ✓ | **3RF2310-1BA22** | | 1 | 1 unit | 41C |
| | 20 | 12 | | ✓ | **3RF2320-1BA22** | | 1 | 1 unit | 41C |
| | 30 | 15 | | ✓ | **3RF2330-1BA22** | | 1 | 1 unit | 41C |
| | 40 | 20 | | -- | **3RF2340-1BA22** | | 1 | 1 unit | 41C |
| | 50 | 25 | | -- | **3RF2350-1BA22** | | 1 | 1 unit | 41C |
| | 50 | 27.5 | | -- | **3RF2370-1BA22** | | 1 | 1 unit | 41C |
| **Instantaneous switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | | | |
| 3RF2320-1 | 10.5 | 6 | 24 DC | ✓ | **3RF2310-1BA04** | | 1 | 1 unit | 41C |
| | 20 | 12 | | ✓ | **3RF2320-1BA04** | | 1 | 1 unit | 41C |
| | 30 | 15 | | ✓ | **3RF2330-1BA04** | | 1 | 1 unit | 41C |
| | 40 | 20 | | -- | **3RF2340-1BA04** | | 1 | 1 unit | 41C |
| | 50 | 25 | | -- | **3RF2350-1BA04** | | 1 | 1 unit | 41C |
| | 50 | 27.5 | | -- | **3RF2370-1BA04** | | 1 | 1 unit | 41C |
| | 10.5 | 6 | 110 ... 230 AC | ✓ | **3RF2310-1BA24** | | 1 | 1 unit | 41C |
| | 20 | 12 | | ✓ | **3RF2320-1BA24** | | 1 | 1 unit | 41C |
| | 30 | 15 | | ✓ | **3RF2330-1BA24** | | 1 | 1 unit | 41C |
| | 40 | 20 | | -- | **3RF2340-1BA24** | | 1 | 1 unit | 41C |
| | 50 | 25 | | -- | **3RF2350-1BA24** | | 1 | 1 unit | 41C |
| | 50 | 27.5 | | -- | **3RF2370-1BA24** | | 1 | 1 unit | 41C |
| | 20 | 12 | 4 ... 30 DC | ✓ | **3RF2320-1BA44** | | 1 | 1 unit | 41C |
| | 30 | 15 | | ✓ | **3RF2330-1BA44** | | 1 | 1 unit | 41C |
| | 50 | 25 | | -- | **3RF2350-1BA44** | | 1 | 1 unit | 41C |
| **Instantaneous switching · Integrated heat sink, blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | | | |
| 3RF2330-1 | 10.5 | 6 | 24 DC | ✓ | **3RF2310-1BA06** | | 1 | 1 unit | 41C |
| | 20 | 12 | | ✓ | **3RF2320-1BA06** | | 1 | 1 unit | 41C |
| | 30 | 15 | | ✓ | **3RF2330-1BA06** | | 1 | 1 unit | 41C |
| | 40 | 20 | | -- | **3RF2340-1BA06** | | 1 | 1 unit | 41C |
| | 50 | 25 | | -- | **3RF2350-1BA06** | | 1 | 1 unit | 41C |
| | 50 | 27.5 | | -- | **3RF2370-1BA06** | | 1 | 1 unit | 41C |
| | 10.5 | 6 | 110 ... 230 AC | ✓ | **3RF2310-1BA26** | | 1 | 1 unit | 41C |
| | 20 | 12 | | ✓ | **3RF2320-1BA26** | | 1 | 1 unit | 41C |
| | 30 | 15 | | ✓ | **3RF2330-1BA26** | | 1 | 1 unit | 41C |
| | 40 | 20 | | -- | **3RF2340-1BA26** | | 1 | 1 unit | 41C |
| | 50 | 25 | | -- | **3RF2350-1BA26** | | 1 | 1 unit | 41C |
| | 50 | 27.5 | | -- | **3RF2370-1BA26** | | 1 | 1 unit | 41C |

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the installation conditions.
For derating characteristic curves, see page 6/120, "More information".

[2] Utilization category AC-15:
Electromagnetic loads, e.g. valves according to IEC 60947-5-1.
Parameters: max. 1 200 1/h, 50% ON period, 10-times inrush current for 60 ms.

Other rated control supply voltages on request.

Accessories, see page 6/145.

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3RF2320-2

| Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | Spring-loaded terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | |
| 10.5 | 24 DC | ✓ | **3RF2310-2AA02** | | 1 | 1 unit | 41C |
| 20 | | ✓ | **3RF2320-2AA02** | | 1 | 1 unit | 41C |
| 10.5 | 110 ... 230 AC | ✓ | **3RF2310-2AA22** | | 1 | 1 unit | 41C |
| 20 | | ✓ | **3RF2320-2AA22** | | 1 | 1 unit | 41C |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | |
| 10.5 | 24 DC | ✓ | **3RF2310-2AA04** | | 1 | 1 unit | 41C |
| 20 | | ✓ | **3RF2320-2AA04** | | 1 | 1 unit | 41C |
| 10.5 | 110 ... 230 AC | ✓ | **3RF2310-2AA24** | | 1 | 1 unit | 41C |
| 20 | | ✓ | **3RF2320-2AA24** | | 1 | 1 unit | 41C |
| **Zero-point switching · Integrated heat sink, blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | |
| 10.5 | 24 DC | ✓ | **3RF2310-2AA06** | | 1 | 1 unit | 41C |
| 20 | | ✓ | **3RF2320-2AA06** | | 1 | 1 unit | 41C |
| 10.5 | 110 ... 230 AC | ✓ | **3RF2310-2AA26** | | 1 | 1 unit | 41C |
| 20 | | ✓ | **3RF2320-2AA26** | | 1 | 1 unit | 41C |
| **Low noise[2], zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | |
| 20 | 24 DC | ✓ | **3RF2320-2CA02** | | 1 | 1 unit | 41C |
| 20 | 110 ... 230 AC | ✓ | **3RF2320-2CA22** | | 1 | 1 unit | 41C |
| **Low noise[2], zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | |
| 20 | 24 DC | ✓ | **3RF2320-2CA04** | | 1 | 1 unit | 41C |
| 20 | 110 ... 230 AC | ✓ | **3RF2320-2CA24** | | 1 | 1 unit | 41C |
| **Short-circuit-proof with B MCB, zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | |
| 20 | 110 ... 230 AC | ✓ | **3RF2320-2DA22** | | 1 | 1 unit | 41C |
| **Short-circuit-proof with B MCB, zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | |
| 20 | 24 DC | ✓ | **3RF2320-2DA04** | | 1 | 1 unit | 41C |
| 30 | | ✓ | **3RF2330-2DA64** | | 1 | 1 unit | 41C |
| 20 | 110 ... 230 AC | ✓ | **3RF2320-2DA24** | | 1 | 1 unit | 41C |

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the installation conditions.
For derating characteristic curves, see page 6/120, "More information".

[2] See page 6/135.

Other rated control supply voltages on request.

Accessories, see page 6/145.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| | Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | Ring cable lug connection Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | A | V | | | | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | | |
| 3RF2310-3 | 10.5 | 24 DC | ✓ | **3RF2310-3AA02** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-3AA02** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-3AA02** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-3AA02** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-3AA02** | | 1 | 1 unit | 41C |
| | 70 | | -- | **3RF2370-3AA02** | | 1 | 1 unit | 41C |
| | 10.5 | 110 ... 230 AC | ✓ | **3RF2310-3AA22** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-3AA22** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-3AA22** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-3AA22** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-3AA22** | | 1 | 1 unit | 41C |
| | 70 | | -- | **3RF2370-3AA22** | | 1 | 1 unit | 41C |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | | |
| 3RF2330-3 | 10.5 | 24 DC | ✓ | **3RF2310-3AA04** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-3AA04** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-3AA04** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-3AA04** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-3AA04** | | 1 | 1 unit | 41C |
| | 70 | | -- | **3RF2370-3AA04** | | 1 | 1 unit | 41C |
| | 10.5 | 110 ... 230 AC | ✓ | **3RF2310-3AA24** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-3AA24** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-3AA24** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-3AA24** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-3AA24** | | 1 | 1 unit | 41C |
| | 70 | | -- | **3RF2370-3AA24** | | 1 | 1 unit | 41C |
| | 20 | 4 ... 30 DC | ✓ | **3RF2320-3AA44** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-3AA44** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-3AA44** | | 1 | 1 unit | 41C |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | | |
| | 40 | 4 ... 30 DC | -- | **3RF2340-3AA45** | | 1 | 1 unit | 41C |
| | 70 | | -- | **3RF2370-3AA45** | | 1 | 1 unit | 41C |
| **Zero-point switching · Integrated heat sink, blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | | |
| | 10.5 | 24 DC | ✓ | **3RF2310-3AA06** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-3AA06** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-3AA06** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-3AA06** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-3AA06** | | 1 | 1 unit | 41C |
| | 70 | | -- | **3RF2370-3AA06** | | 1 | 1 unit | 41C |
| | 10.5 | 110 ... 230 AC | ✓ | **3RF2310-3AA26** | | 1 | 1 unit | 41C |
| | 20 | | ✓ | **3RF2320-3AA26** | | 1 | 1 unit | 41C |
| | 30 | | ✓ | **3RF2330-3AA26** | | 1 | 1 unit | 41C |
| | 40 | | -- | **3RF2340-3AA26** | | 1 | 1 unit | 41C |
| | 50 | | -- | **3RF2350-3AA26** | | 1 | 1 unit | 41C |
| | 70 | | -- | **3RF2370-3AA26** | | 1 | 1 unit | 41C |

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the installation conditions.
For derating characteristic curves, see page 6/120, "More information".

Other rated control supply voltages on request.

Accessories, see page 6/145.

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## Solid-state contactors > SIRIUS 3RF23 solid-state contactors, 1-phase

| | Type current/ performance capacity[1] $I_{max}$ | Operational current $I_e$/AC-15[2] | Rated control supply voltage $U_s$ | Ground-ing | Ring cable lug connection | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | | | |
| | A | A | V | | | | | | |
| **Instantaneous switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | | | |
| | 70 | 27.5 | 24 DC | -- | **3RF2370-3BA02** | | 1 | 1 unit | 41C |
| | 70 | 27.5 | 110 ... 230 AC | -- | **3RF2370-3BA22** | | 1 | 1 unit | 41C |
| **Instantaneous switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | | | |
| | 70 | 27.5 | 24 DC | -- | **3RF2370-3BA04** | | 1 | 1 unit | 41C |
| | 70 | 27.5 | 110 ... 230 AC | -- | **3RF2370-3BA24** | | 1 | 1 unit | 41C |
| **Instantaneous switching · Integrated heat sink, blocking voltage 1 600 V, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | | | |
| | 70 | 27.5 | 24 DC | -- | **3RF2370-3BA06** | | 1 | 1 unit | 41C |
| | 70 | 27.5 | 110 ... 230 AC | -- | **3RF2370-3BA26** | | 1 | 1 unit | 41C |
| **Short-circuit-proof with B MCB, zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 24 ... 230 V AC** | | | | | | | | | |
| 3RF2320-3DA02 | 20 | -- | 24 DC | ✓ | **3RF2320-3DA02** | | 1 | 1 unit | 41C |
| | 20 | -- | 110 ... 230 AC | ✓ | **3RF2320-3DA22** | | 1 | 1 unit | 41C |
| **Short-circuit-proof with B MCB, zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 460 V AC** | | | | | | | | | |
| | 20 | -- | 24 DC | ✓ | **3RF2320-3DA04** | | 1 | 1 unit | 41C |
| | 20 | -- | 110 ... 230 AC | ✓ | **3RF2320-3DA24** | | 1 | 1 unit | 41C |

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

1) The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the installation conditions.
For derating characteristic curves, see page 6/120, "More information".

2) Utilization category AC-15:
Electromagnetic loads, e.g. valves according to IEC 60947-5-1.
Parameters: max. 1 200 1/h, 50% ON period, 10-times inrush current for 60 ms.

Other rated control supply voltages on request.

Accessories, see page 6/145.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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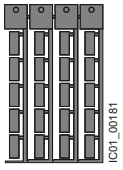
## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminal covers** | | | | | | |
| | | **Ring cable lug connection** | | | | |
| 3RF2900-3PA88 | **Terminal covers**<br>For 3RF23 solid-state contactors with ring cable lug connection<br>With this terminal cover, degree of protection IP20 can be achieved on the front with a ring cable lug connection. It can also be used for screw terminals after simple adaptation. | **3RF2900-3PA88** | | 1 | 10 units | 41C |
| **Control connectors** | | | | | | |
| | | **Screw terminals** | | | | |
| 3RF2900-1TA88 | **Replacement control connectors**<br>For 3RF23 and 3RF24 solid-state contactors<br>With screw terminals | **3RF2900-1TA88** | | 1 | 50 units | 41C |
| | | **Spring-loaded terminals** | | | | |
| 3RF2900-2TA88 | **Replacement control connectors**<br>For 3RF23 and 3RF24 solid-state contactors<br>With spring-loaded terminals | **3RF2900-2TA88** | | 1 | 50 units | 41C |
| 3RF2900-2TB88 | **Control connectors**<br>For 3RF23 and 3RF24 solid-state contactors<br>With spring-loaded terminals<br>With two clamping points per contact | **3RF2900-2TB88** | | 1 | 10 units | 41C |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdrivers**<br>For all SIRIUS devices<br>With spring-loaded terminals<br>Length approx. 200 mm, size 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**<br>For SIRIUS devices[1] | | | | | |
| | 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| | 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | **Adhesive labels**<br>For SIRIUS devices | | | | | |
| | 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

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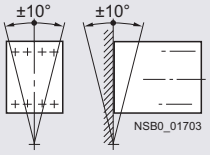
## Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16223/faq |

| | | | | |
|---|---|---|---|---|
| Type | | **3RF24..-1....** | **3RF24..-2....** | **3RF24..-3....** |
| Dimensions (W x H x D) | | See page 6/147 | | |
| **General data** | | | | |
| **Ambient temperature** | | | | |
| • During operation, derating from 40 °C | °C | -25 ... +60 | | |
| • During storage | °C | -55 ... +80 | | |
| **Installation altitude** | m | 0 ... 1 000; derating from 1 000 | | |
| **Shock resistance** according to IEC 60068-2-27 | *g*/ms | 15/11 | | |
| **Vibration resistance** according to IEC 60068-2-6 | *g* | 2 | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | IP00 |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | | -- |
| **Insulation strength** at 50/60 Hz (main/control circuit to floor) | V rms | 4 000 | | |
| **Electromagnetic compatibility (EMC)** | | | | |
| • Emitted interference according to IEC 60947-4-3 | | | | |
| - Conducted interference voltage | | Class A for industrial applications[1] | | |
| • Interference immunity | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV | Contact discharge 4; air discharge 8; behavior criterion 2 | | |
| - Induced RF fields according to IEC 61000-4-6 | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | | |
| - Burst according to IEC 61000-4-4 | kV | 2/5.0 kHz; behavior criterion 2 | | |
| - Surge according to IEC 61000-4-5 | kV | Conductor - ground 2; conductor - conductor 1; behavior criterion 2 | | |
| **Connection type** | | **Screw terminals** | **Spring-loaded terminals** | **Ring cable lug connection** |
| **Connection, main contacts** | | | | |
| • Conductor cross-section | | | | |
| - Solid | $mm^2$ | 2 x (1.5 ... 2.5)[2], 2 x (2.5 ... 6)[2] | 2 x (0.5 ... 2.5) | -- |
| - Finely stranded with end sleeve | $mm^2$ | 2 x (1 ... 2.5)[2], 2 x (2.5 ... 6)[2], 1 x 10 | 2 x (0.5 ... 1.5) | -- |
| - Finely stranded without end sleeve | $mm^2$ | -- | 2 x (0.5 ... 2.5) | -- |
| - Solid or stranded, AWG cables | AWG | 2 x (14 ... 10) | 2 x (18 ... 14) | -- |
| • Stripped length | mm | 10 | 10 | -- |
| • Terminal screws | | M4 | -- | M5 |
| - Tightening torque | Nm | 2 ... 2.5 | | 2 ... 2.5 |
| | lb.in | 18 ... 22 | | 18 ... 22 |
| • Cable lugs | | | | |
| - According to DIN 46234 | | -- | -- | 5-2.5 ... 5-25 |
| - According to JIS C 2805 | | -- | -- | R 2-5 ... R 14-5 |
| - Width, maximum | mm | -- | -- | 12 |
| **Connection, auxiliary/control contacts** | | | | |
| • Conductor cross-section | mm | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) | 0.5 ... 2.5 | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) |
| | AWG | 20 ... 12 | 20 ... 12 | 20 ... 12 |
| • Stripped length | mm | 7 | 10 | 7 |
| • Terminal screw | | M3 | -- | M3 |
| - Tightening torque, ∅ 3.5 mm, PZ 1 | Nm | 0.5 ... 0.6 | -- | 0.5 ... 0.6 |
| | lb.in | 4.5 ... 5.3 | -- | 4.5 ... 5.3 |
| **Grounding studs** | | Optional, see also note on page 6/135 about the special mounting foot for safe grounding on DIN rails for version 3RF2410 | | |
| • Size (standard screw) | | M5 | | |
| **Permissible mounting position** | |   | | |

[1] These products were built as Class A devices. The use of these devices in residential areas could result in radio interference. In this case it may be required to introduce additional interference suppression measures. The versions 3RF24..-1AC55 comply with Class B for residential, business and commercial applications.

[2] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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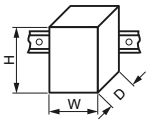
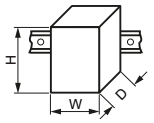
| Type | Type current/ performance capacity[1] $I_{AC-51}$ at 40 °C | Rated operational current $I_e$ according to IEC 60947-4-3 at 40 °C | Rated operational current $I_e$ according to UL/CSA at 50 °C | Power loss at $I_{AC-51}$ | Minimum load current | Max. off-state current | Rated peak withstand current $I_{tsm}$ | $I^2t$ value |
|---|---|---|---|---|---|---|---|---|
| | A | A | A | W | A | mA | A | $A^2s$ |
| **Main circuit** | | | | | | | | |
| **3RF2410-.AB.5** | 10.5 | 7 | 7 | 23 | 0.1 | 10 | 200 | 200 |
| **3RF2420-.AB.5** | 22 | 15 | 15 | 44 | 0.5 | 10 | 600 | 1 800 |
| **3RF2430-.AB.5** | 30 | 22 | 22 | 61 | 0.5 | 10 | 1 200 | 7 200 |
| **3RF2440-.AB.5** | 40 | 30 | 30 | 80 | 0.5 | 10 | 1 150 | 6 600 |
| **3RF2450-.AB.5** | 50 | 38 | 38 | 107 | 0.5 | 10 | 1 150 | 6 600 |
| **3RF2410-.AC.5** | 10.5 | 7 | 7 | 31 | 0.5 | 10 | 300 | 450 |
| **3RF2420-.AC.5** | 22 | 15 | 15 | 66 | 0.5 | 10 | 600 | 1 800 |
| **3RF2430-.AC.5** | 30 | 22 | 22 | 91 | 0.5 | 10 | 1 200 | 7 200 |
| **3RF2440-.AC.5** | 40 | 30 | 30 | 121 | 0.5 | 10 | 1 150 | 6 600 |
| **3RF2450-.AC.5** | 50 | 38 | 38 | 160 | 0.5 | 10 | 1 150 | 6 600 |

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and installation conditions.

| Type | Type current $I_{AC-51}$ | Dimensions (W x H x D) (including heat sink) |
|---|---|---|
| | A | mm |
| **Main circuit** | | |
| **3RF2410-.AB..** | 10.5 | 45 x 95 x 92.5 |
| **3RF2410-.AC..** | | |
| **3RF2420-.AB..** | 22 | 45 x 100 x 112 |
| **3RF2420-.AC..** | 22 | 74.5 x 100 x 114.5 |
| **3RF2430-.AB..** | 30 | |




| Type | Type current $I_{AC-51}$ | Dimensions (W x H x D) (including heat sink) |
|---|---|---|
| | A | mm |
| **Main circuit** | | |
| **3RF2430-.AC..** | 30 | 89.5 x 100 x 123 |
| **3RF2440-.AB..** | 40 | |
| **3RF2440-.AC..** | 40 | 120 x 95 x 130 |
| **3RF2450-.AB..** | 50 | |
| **3RF2450-.AC..** | 50 | 120 x 150 x 130 |




| Type | | 3RF24..-.AB.5 | 3RF24..-.AC.5 |
|---|---|---|---|
| **Main circuit** | | | |
| **Controlled phases** | | 2-phase | 3-phase |
| **Rated operational voltage $U_e$** | V AC | 48 ... 600 | |
| • Operating range | V AC | 40 ... 660 | |
| • Rated frequency | Hz | 50/60 ± 10% | |
| **Rated insulation voltage $U_i$** | V | 600 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | |
| **Blocking voltage** | V | 1 200 | |
| **Rate of voltage rise** | V/µs | 1 000 | |

| Type | | 3RF24..-...3. | 3RF24..-...4. | 3RF24..-...5. |
|---|---|---|---|---|
| **Control circuit** | | | | |
| **Method of operation** | | AC operation | DC operation | AC operation |
| **Rated control supply voltage $U_s$** | V | 110 | 4 ... 30 | 190 ... 230 |
| **Rated frequency** of the control supply voltage | Hz | 50/60 ± 10% | -- | 50/60 ± 10% |
| **Actuating voltage, max.** | V | 121 | 30 | 253 |
| **Typical actuating current** | mA | 15 | 30 | 15 |
| **Response voltage** | V | 90 | 4 | 180 |
| **Drop-out voltage** | V | < 40 | < 1 | < 40 |
| **Operating times** | | | | |
| • ON-delay | ms | 40 + max. one half-wave | 1 + max. one half-wave | 40 + max. one half-wave |
| • OFF-delay | ms | 40 + max. one half-wave | 1 + max. one half-wave | 40 + max. one half-wave |

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## Selection and ordering data

| Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | |
| ***2-phase controlled*** | | | | | | | |
| 10.5 | 4 ... 30 DC | ✓ | **3RF2410-1AB45** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AB45** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AB45** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AB45** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AB45** | | 1 | 1 unit | 41C |
| 10.5 | 110 AC | ✓ | **3RF2410-1AB35** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AB35** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AB35** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AB35** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AB35** | | 1 | 1 unit | 41C |
| 10.5 | 230 AC | ✓ | **3RF2410-1AB55** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AB55** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AB55** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AB55** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AB55** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | | |
| 10.5 | 4 ... 30 DC | ✓ | **3RF2410-1AC45** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AC45** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AC45** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AC45** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AC45** | | 1 | 1 unit | 41C |
| 10.5 | 110 AC | ✓ | **3RF2410-1AC35** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AC35** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AC35** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AC35** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AC35** | | 1 | 1 unit | 41C |
| 10.5 | 230 AC | ✓ | **3RF2410-1AC55** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-1AC55** | | 1 | 1 unit | 41C |
| 30 | | -- | **3RF2430-1AC55** | | 1 | 1 unit | 41C |
| 40 | | -- | **3RF2440-1AC55** | | 1 | 1 unit | 41C |
| 50 | | -- | **3RF2450-1AC55** | | 1 | 1 unit | 41C |

3RF2410-1AB45

3RF2410-1AC45

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and installation conditions.
For derating characteristic curves, see page 6/120, "More information".

Accessories, see page 6/145.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | **Spring-loaded terminals** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | |
| ***2-phase controlled*** | | | | | | | |
| 10 | 4 ... 30 DC | ✓ | **3RF2410-2AB45** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-2AB45** | | 1 | 1 unit | 41C |
| 10 | 230 AC | ✓ | **3RF2410-2AB55** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-2AB55** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | | |
| 10 | 4 ... 30 DC | ✓ | **3RF2410-2AC45** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-2AC45** | | 1 | 1 unit | 41C |
| 10 | 230 AC | ✓ | **3RF2410-2AC55** | | 1 | 1 unit | 41C |
| 20 | | -- | **3RF2420-2AC55** | | 1 | 1 unit | 41C |

3RF2410-2AB45

✓ These versions are equipped with a special mounting foot. Snapping them onto grounded DIN rails or mounting them on a grounded mounting plate simultaneously provides safe grounding of the heat sink. Additional grounding is no longer necessary in this case.

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and installation conditions.
For derating characteristic curves, see page 6/120, "More information".

| Type current/ performance capacity[1] $I_{max}$ | Rated control supply voltage $U_s$ | Grounding | **Ring cable lug connection** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Zero-point switching · Integrated heat sink, rated operational voltage $U_e$ 48 ... 600 V AC** | | | | | | | |
| ***2-phase controlled*** | | | | | | | |
| 50 | 4 ... 30 DC | -- | **3RF2450-3AB45** | | 1 | 1 unit | 41C |
| 50 | 230 AC | -- | **3RF2450-3AB55** | | 1 | 1 unit | 41C |
| ***3-phase controlled*** | | | | | | | |
| 50 | 4 ... 30 DC | -- | **3RF2450-3AC45** | | 1 | 1 unit | 41C |
| 50 | 230 AC | -- | **3RF2450-3AC55** | | 1 | 1 unit | 41C |

-- With these versions, the ground connection to the heat sink can be established by means of a screw terminal connection.

[1] The type current provides information about the performance of the solid-state contactor. The actual permitted rated operational current $I_e$ can be smaller depending on the connection method and installation conditions.
For derating characteristic curves, see page 6/120, "More information".

Accessories, see page 6/145.

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## General data

### Overview

***Function modules for SIRIUS 3RF2 solid-state switching devices***

A great variety of applications demand an expanded range of functionality. With our function modules, these requirements can be met really easily. The modules are mounted simply by clicking them into place; straight away the necessary connections are made with the solid-state relay or contactor.

The plug-in connection to control the solid-state switching devices can simply remain in use. The external connections have screw terminals.

For function modules with current measurement, the load cable must be inserted through the straight-through transformer and reconnected to the solid-state switching device.

The following function modules are available:

- Converters (without current measurement)
- Load monitoring
- Heating current monitoring
- Power controllers
- Power regulators

Note:

With the exception of the converter, the function modules can be used only with 1-phase solid-state switching devices.

For recommended assignment of the function modules to 3RF2 solid-state switching devices, see Industry Mall.

### Technical specifications

| More information | |
|---|---|
| Online configurator, see www.siemens.com/sirius/configurators | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16231/faq |
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | Conversion tool, see www.siemens.com/conversion-tool |

| Type | | 3RF29..-0EA.. | 3RF29..-0FA.. | 3RF29..-0GA.. | 3RF29..-0HA.. | 3RF29..-0JA.. | 3RF29..-0KA.. |
|---|---|---|---|---|---|---|---|
| Dimensions (W x H x D) | mm | 22.5 x 84 x 38 | 22.5 x 102 x 39 | 45 x 112 x 44 | 45 x 112 x 44 | 45 x 112 x 44 | 45 x 112 x 44 |
| **General data** | | | | | | | |
| **Ambient temperature** | | | | | | | |
| • During operation, derating from 40 °C | °C | -25 ... +60 | | | | | |
| • During storage | °C | -55 ... +80 | | | | | |
| **Installation altitude** | m | 0 ... 1 000; derating from 1 000 | | | | | |
| **Shock resistance** according to IEC 60068-2-27 | *g*/ms | 15/11 | | | | | |
| **Vibration resistance** according to IEC 60068-2-6 | *g* | 2 | | | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | | | | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | | | | | |
| **Electromagnetic compatibility (EMC)** | | | | | | | |
| • Emitted interference | | | | | | | |
| - Conducted interference voltage according to IEC 60947-4-3 | | Class A for industrial applications[1] | | | | | |
| - Emitted, high-frequency interference voltage according to IEC 60947-4-3 | | Class B for residential, business and commercial applications | | | | | |
| • Interference immunity | | | | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV | Contact discharge 4; air discharge 8; behavior criterion 2 | | | | | |
| - Induced RF fields according to IEC 61000-4-6 | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | | | | | |
| - Burst according to IEC 61000-4-4 | | 2 kV/5.0 kHz; behavior criterion 2 | | | | | |
| - Surge according to IEC 61000-4-5 | kV | Conductor - ground 2; conductor - conductor 1; behavior criterion 2 | | | | | |
| **Connection type** Auxiliary/control contacts | | **Screw terminals** | | | | | |
| • Conductor cross-section | $mm^2$ | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0), 1 x (AWG 20 ... 12) | | | | | |
| • Stripped length | mm | 7 | | | | | |
| • Terminal screw | | M3 | | | | | |
| • Tightening torque | Nm<br>lb.in | 0.5 ... 0.6<br>4.5 ... 5.3 | | | | | |
| **Connection type** Converters | | **Straight-through transformers** | | | | | |
| • Diameter | mm | -- | 7 | 17 | | | |

[1] Note limitations for power controller and power regulator function modules. These modules were built as Class A devices. The use of these devices in residential areas could result in radio interference. In this case it may be required to introduce additional interference suppression measures.

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| Type | | 3RF29..-0EA18[1)] | 3RF29..-0FA08[1)] | 3RF29..-0GA.3 | 3RF29..-0GA.6 |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Rated operational voltage $U_e$** | V AC | -- | | 110 ... 230 | 400 ... 600 |
| • Operating range | V AC | -- | | 93.5 ... 253 | 340 ... 660 |
| • Rated frequency | Hz | -- | | 50/60 | |
| **Rated insulation voltage $U_i$** | V | -- | | 600 | |
| **Voltage measuring** | | | | | |
| • Measuring range | V | -- | | 93.5 ... 253 | 340 ... 660 |
| **Mains voltage, fluctuation compensation** | % | -- | | 20 | |

[1)] Versions are independent of the main circuit.

| Type | | 3RF29..-0HA.3<br>3RF29..-0KA.3 | 3RF29..-0HA.6<br>3RF29..-0KA.6 | 3RF29..-0JA.3 | 3RF29..-0JA.6 |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Rated operational voltage $U_e$** | V AC | 110 ... 230 | 400 ... 600 | 110 ... 230 | 400 ... 600 |
| • Operating range | V AC | 93.5 ... 253 | 340 ... 660 | 93.5 ... 253 | 340 ... 660 |
| • Rated frequency | Hz | 50/60 | | | |
| **Rated insulation voltage $U_i$** | V | 600 | | | |
| **Voltage measuring** | | | | | |
| • Measuring range | V | 93.5 ... 253 | 340 ... 660 | 93.5 ... 253 | 340 ... 660 |
| **Mains voltage, fluctuation compensation** | % | 20 | | | |

| Type | | 3RF29..-...0. | 3RF29..-...1. |
|---|---|---|---|
| **Control circuit** | | | |
| **Method of operation** | | DC operation | AC/DC operation |
| **Rated control supply voltage $U_s$** | V | 24 | |
| Rated actuating current | mA | 25 | 40 |
| **Rated frequency** | Hz | -- | 50/60 |
| of the control supply voltage | | | |
| **Actuating voltage, max.** | V | 30 | |
| **Rated actuating current** | mA | 30 | 50 |
| At maximum voltage | | | |
| **Response voltage** | V | 15 | |
| • For operating current | mA | 2 | |
| **Drop-out voltage** | V | 5 | |

| Type | | 3RF2906-0FA08 | 3RF2920-0FA08 | 3RF2920-0GA.. | 3RF2950-0GA.. | 3RF2990-0GA.. |
|---|---|---|---|---|---|---|
| **Current measurement** | | | | | | |
| **Rated operational current $I_e$** | A | 6 | 20 | | 50 | 90 |
| **Current measurement** | | | | | | |
| • Teach range | A | 0.25 … 6 | 0.65 … 20 | 0.56 … 20 | 1.62 … 50 | 2.93 … 90 |
| • Measuring range | A | 0 … 6.6 | 0 … 22 | | 0 … 55 | 0 … 99 |
| • Minimum partial load current | A | 0.25 | 0.65 | | 1.6 | 2.9 |
| **Number of partial loads** | | 1 … 6 | | 1 … 12 | | |

| Type | | 3RF2920-0HA.. | 3RF2950-0HA.. | 3RF2990-0HA.. | 3RF2916-0JA.. | 3RF2932-0JA.. |
|---|---|---|---|---|---|---|
| **Current measurement** | | | | | | |
| **Rated operational current $I_e$** | A | 20 | 50 | 90 | 16 | 32 |
| **Current measurement** | | | | | | |
| • Teach range | A | 4 ... 20 | 10 ... 50 | 18 ... 90 | 0.42 ... 16 | 0.8 ... 32 |
| • Measuring range | A | 0 ... 22 | 0 ... 55 | 4 ... 99 | 0 ... 16 | 0 ... 32 |
| • Minimum partial load current | A | -- | | | 0.42 | 0.8 |
| **Number of partial loads** | | -- | | | 1 ... 6 | |

| Type | | 3RF2904-0KA.. | 3RF2920-0KA.. | 3RF2950-0KA.. | 3RF2990-0KA.. |
|---|---|---|---|---|---|
| **Current measurement** | | | | | |
| **Rated operational current $I_e$** | A | 4 | 20 | 50 | 90 |
| **Current measurement** | | | | | |
| • Teach range | A | 0.15 ... 4 | 0.65 ... 20 | 1.6 ... 50 | 2.9 ... 90 |
| • Measuring range | A | 0 ... 4 | 0 ... 22 | 0 ... 55 | 0 ... 99 |
| • Minimum partial load current | A | -- | 0.65 | 1.6 | 2.9 |
| **Number of partial loads** | | -- | 1 ... 6 | | |

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## SIRIUS converters for 3RF2

### Overview

***Converters for 3RF2 solid-state switching devices***

These modules are used to convert analog control signals, such as those output from many temperature controllers for example, into a pulse-width-modulated digital signal. The connected solid-state contactors and relays can therefore regulate the output of a load as a percentage.

### Application

The function module is used for converting an analog input signal to an input/output ratio with the time base 1 s. The module can only be used in conjunction with 3RF21 and 3RF23 1-phase solid-state switching devices or 3RF22 and 3RF24 3-phase devices. It can be used on versions with 24 V DC and 24 V AC/DC control supply voltage.

Note:

The use of 1-pole solid-state switching devices with converters, power controllers or power regulators of loads in a three-phase network in full-wave control mode is not recommended. As mutual synchronization of the function modules is not possible, fluctuations in the heating power are possible; there is no optimum settling in particular with setpoint values < 50%.

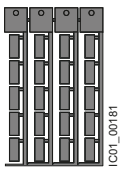
### Selection and ordering data

| Rated operational current $I_e$ | Rated operational voltage $U_e$ | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| A | V | Article No. | Price per PU | | | |
| **Converters** | | | | | | |
| Rated control supply voltage 24 V AC/DC | | | | | | |
| -- | -- | **3RF2900-0EA18** | | 1 | 1 unit | 41C |

3RF2900-0EA18

### Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Blank labels** | | | | | |
| **Unit labeling plates** For SIRIUS devices[1] | | | | | |
| 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Adhesive labels** For SIRIUS devices | | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |




3RT2900-1SB20

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

***Load monitoring for 3RF2 1-phase solid-state switching devices***

Many faults can be quickly detected by monitoring a load circuit connected to the solid-state switching device, as made possible with this module. Examples include the failure of load elements (up to 6 in the basic version or up to 12 in the extended version), alloyed power semiconductors, a lack of voltage or a break in a load circuit. A fault is indicated by one or more LEDs and reported to the controller by way of a PLC-compatible output.

The principle of operation is based on permanent monitoring of the current intensity. This figure is continuously compared with the reference value stored once during startup by the simple press of a button.

In order to detect the failure of one of several loads, the current difference must be 1/6 (in the basic version) or 1/12 (in the extended version) of the reference value. In the event of a fault, an output is actuated and one or more LEDs indicate the fault.

## Application

The device is used for monitoring one or more loads (partial loads).

Notes:

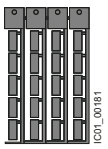
The function module can only be used in conjunction with a 3RF21 solid-state relay or a 3RF23 solid-state contactor.

The solid-state switching devices with spring-loaded terminals in the load circuit are not suitable for load monitoring!

## Selection and ordering data

| Rated operational current $I_e$ | Rated operational voltage $U_e$ | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| A | V | Article No. | | | |
| **Basic load monitoring** | | | | | |
| 3RF2920-0FA08 | | | | | |
| Rated control supply voltage 24 V DC | | | | | |
| 6 | -- | **3RF2906-0FA08** | 1 | 1 unit | 41C |
| 20 | -- | **3RF2920-0FA08** | 1 | 1 unit | 41C |
| • With mounted 3RF2900-0RA88 cover | | | | | |
| 6 | -- | **3RF2906-0FA08-0KH0** | 1 | 1 unit | 41C |
| 20 | -- | **3RF2920-0FA08-0KH0** | 1 | 1 unit | 41C |
| **Extended load monitoring** | | | | | |
| 3RF2920-0GA13 | | | | | |
| Rated control supply voltage 24 V AC/DC | | | | | |
| 20 | 110 ... 230 | **3RF2920-0GA13** | 1 | 1 unit | 41C |
| 20 | 400 … 600 | **3RF2920-0GA16** | 1 | 1 unit | 41C |
| 50 | 110 ... 230 | **3RF2950-0GA13** | 1 | 1 unit | 41C |
| 50 | 400 … 600 | **3RF2950-0GA16** | 1 | 1 unit | 41C |
| 90 | 110 ... 230 | **3RF2990-0GA13** | 1 | 1 unit | 41C |
| 90 | 400 … 600 | **3RF2990-0GA16** | 1 | 1 unit | 41C |

## Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Covers** | | | | | |
| 3RF2900-0RA88 | | | | | |
| **Sealable covers for function modules** (not for converters) For securing against unauthorized adjustment of setting knobs | **3RF2900-0RA88** | | 1 | 10 units | 41C |
| **Blank labels** | | | | | |
|  3RT2900-1SB20 | | | | | |
| **Unit labeling plates** For SIRIUS devices[1] | | | | | |
| 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Adhesive labels** For SIRIUS devices | | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## SIRIUS heating current monitoring for 3RF2

### Overview

***Heating current monitoring for 3RF2 1-phase solid-state switching devices***

Many faults can be quickly detected by monitoring a load circuit connected to the solid-state switching device, as made possible with this module. Examples include the failure of up to six load elements, alloyed power semiconductors, a lack of voltage, or a break in the load circuit. A fault is indicated by LEDs and reported to the controller via relay output (NC).

The principle of operation is based on permanent monitoring of the current intensity. This figure is continuously compared with the reference value stored once during startup. In order to detect the failure of one of several loads, the current difference must be 1/6 of the reference value. In the event of a fault, an output is actuated and the LEDs indicate the fault.

The heating current monitoring has a teach input and therefore differs from the load monitoring. This remote teaching function enables simple adjustment to changing loads without manual intervention.

***Special version with "Standby" mode: Deviations from the standard version***

3RF29..-0JA1.-1KK0

If the current is below 50% of the lower teach current during the teach routine, the device will go into "Standby" mode; the LOAD LED will flicker. The device thus detects a non-connected load, e.g. channels not required for tool heaters, and does not signal a fault. This mode can be reset by re-teaching.

### Application

The device is used for monitoring one or more loads (partial loads).

Notes:

The function module can only be used in conjunction with a 3RF21 solid-state relay or a 3RF23 solid-state contactor.

The solid-state switching devices with spring-loaded terminals in the load circuit are not suitable!

### Selection and ordering data

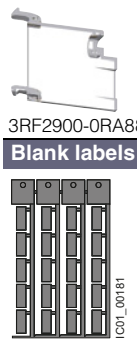
| Rated operational current $I_e$ | Rated operational voltage $U_e$ | **Screw terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| A | V | Article No. Price per PU | | | |
| **Heating current monitoring**[1] | | | | | |
| Rated control supply voltage 24 V AC/DC | | | | | |
| 16 | 110 ... 230 | **3RF2916-0JA13** | 1 | 1 unit | 41C |
| 16 (with "Standby" mode) | 110 ... 230 | **3RF2916-0JA13-1KK0** | 1 | 1 unit | 41C |
| 16 (with "Standby" mode) | 400 … 600 | **3RF2916-0JA16-1KK0** | 1 | 1 unit | 41C |
| 32 (with "Standby" mode) | 110 ... 230 | **3RF2932-0JA13-1KK0** | 1 | 1 unit | 41C |
| 32 | 400 … 600 | **3RF2932-0JA16** | 1 | 1 unit | 41C |
| 32 (with "Standby" mode) | 400 … 600 | **3RF2932-0JA16-1KK0** | 1 | 1 unit | 41C |

3RF2916-0JA13

1) Supplied without control connector. The control connector can be purchased from Wieland by quoting article number 8213 B/6VR (PCB connector), see page 16/18.

### Accessories

| Version | Article No. Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|
| **Covers** | | | | |
| **Sealable covers for function modules** (not for converters)<br>For securing against unauthorized adjustment of setting knobs | **3RF2900-0RA88** | 1 | 10 units | 41C |
| **Blank labels** | | | | |
| **Unit labeling plates**<br>For SIRIUS devices[1] | | | | |
| 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | 100 | 816 units | 41B |
| 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | 100 | 340 units | 41B |
| **Adhesive labels**<br>For SIRIUS devices | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | 100 | 3060 units | 41B |


3RF2900-0RA88



3RT2900-1SB20

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

***Power controllers for 3RF2 1-phase solid-state switching devices***

The power controller is a function module for the autonomous power control of complex heating systems and inductive loads.

The following functions have been integrated:

- Power controller
  For adjusting the power of the connected load. The setpoint value is selected via a rotary knob on the module as a percentage of the 100% power value stored.
- Inrush current limiting
  With the aid of an adjustable voltage ramp, the inrush current is limited by means of phase control. This is useful above all with loads such as lamps or infrared lamps which have an inrush transient current.
- Load circuit monitoring
  For detecting load failure, partial load faults, alloyed power semiconductors, lack of voltage or a break in the load circuit.

Note:

With the phase control operating mode, a partial load fault is detected by cyclic "scanning" of the load; the exact mode of operation is described in the data sheets!

***Special versions:***
***Deviations from the standard version***

3RF2904-0KA13-0KC0 (no teach current)

During the teach routine, the connected solid-state relay or contactor is not activated; i.e. no current will flow. No current reference value is stored. No partial load monitoring!

3RF29..-0KA1.-0KT0 (without partial load faults)

No partial load monitoring!

## Application

The power controller can be used for:

- Complex heating systems
- Inductive loads
- Loads with temperature-dependent resistor
- Loads with ageing after long-time service
- Simple indirect control of temperature

Notes:

This function module can only be used in conjunction with a 3RF21 solid-state relay or a 3RF23 solid-state contactor.

The solid-state switching devices with spring-loaded terminals in the load circuit are not suitable!

***Power control***

The power controller adjusts the power in the connected load by means of a solid-state switching device depending on the setpoint selection. It does not compensate for changes in the mains voltage or load resistance. The setpoint value can be predefined externally as a 0 to 10 V signal or internally by means of a potentiometer. Depending on the setting of the potentiometer ($t_R$), the control is carried out according to the principle of full-wave control or generalized phase control.

Note:

In the case of ohmic loads, the power is set linear to the setpoint value. During operation of inductive loads, the power control is no longer proportional and linear due to the phase shift between current and voltage.

***Full-wave control***

In this operating mode the output is adjusted to the required setpoint value by changing the on-to-off period. The period duration is predefined at 1 s.

Notes:

The use of 1-pole solid-state switching devices with converters, power controllers or power regulators of loads in a three-phase network in full-wave control mode is not recommended.
As mutual synchronization of the function modules is not possible, fluctuations in the heating power are possible; there is no optimum settling in particular with setpoint values < 50%.

***Generalized phase control***

In this operating mode the output is adjusted to the required setpoint value by changing the current flow angle. In order to observe the limit values of the conducted interference voltage for industrial networks, at loads up to 20 kVA, the load circuit must include an additional filter, and for loads above 20 kVA, a reactor with a rating of at least 200 µH must be used. You will find details about the filters in the FAQ "Filters for 3RF29 power regulators and power controllers to comply with the limits for electromagnetic emitted interference", see https://support.industry.siemens.com/cs/ww/en/view/109751887.

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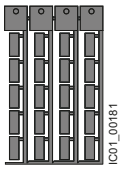
## SIRIUS power controllers for 3RF2

### Selection and ordering data

| Rated operational current $I_e$ | Rated operational voltage $U_e$ | Screw terminals | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| A | V | | | | | | |
| **Power controllers** | | | | | | | |
| 3RF2904-0KA13 | | | | | | | |
| Rated control supply voltage 24 V AC/DC | | | | | | | |
| 4 (no teach current) | 110 ... 230 | | **3RF2904-0KA13-0KC0** | | 1 | 1 unit | 41C |
| 4 (without partial load faults) | | | **3RF2904-0KA13-0KT0** | | 1 | 1 unit | 41C |
| 20 | | | **3RF2920-0KA13** | | 1 | 1 unit | 41C |
| 50 | | | **3RF2950-0KA13** | | 1 | 1 unit | 41C |
| 90 | | | **3RF2990-0KA13** | | 1 | 1 unit | 41C |
| 20 | 400 ... 600 | | **3RF2920-0KA16** | | 1 | 1 unit | 41C |
| 50 | | | **3RF2950-0KA16** | | 1 | 1 unit | 41C |
| 50 (without partial load faults) | | | **3RF2950-0KA16-0KT0** | | 1 | 1 unit | 41C |
| 90 | | | **3RF2990-0KA16** | | 1 | 1 unit | 41C |

### Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Covers** | | | | | |
| 3RF2900-0RA88 | | | | | |
| **Sealable covers for function modules** (not for converters) For securing against unauthorized adjustment of setting knobs | **3RF2900-0RA88** | | 1 | 10 units | 41C |
| **Blank labels** | | | | | |
|  3RT2900-1SB20 | | | | | |
| **Unit labeling plates** For SIRIUS devices[1] | | | | | |
| 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Adhesive labels** For SIRIUS devices | | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

***Power regulators for 3RF2 1-phase solid-state switching devices***

The power regulator is a function module for the autonomous power control of complex heating systems.

The following functions have been integrated:

- Power controller with proportional-action control
  For adjusting the power of the connected load. The setpoint value is selected via a rotary knob on the module as a percentage of the 100% power value stored. Changes in the mains voltage or in the load resistance are compensated in this case.
- Inrush current limiting
  With the aid of an adjustable voltage ramp, the inrush current is limited by means of phase control. This is useful above all with loads such as lamps which have an inrush transient current.
- Load circuit monitoring
  For detecting load failure, alloyed power semiconductors, lack of voltage or a break in the load circuit. Partial load monitoring is not possible. Load fluctuations are compensated.

## Application

The power regulator can be used for:

- Complex heating systems
- Heating elements with temperature-dependent resistor
- Heating elements with ageing after long-time service
- Simple indirect control of temperature

Notes:

This function module can only be used in conjunction with a 3RF21 solid-state relay or a 3RF23 solid-state contactor.

The solid-state switching devices with spring-loaded terminals in the load circuit are not suitable!

***Power control***

The power regulator adjusts the power in the connected load by means of a solid-state switching device depending on the taught power and the selected setpoint. Changes in the mains voltage or in the load resistance are thus compensated by the power regulator. The setpoint value can be predefined externally as a 0 to 10 V signal or internally by means of a potentiometer. Depending on the setting of the potentiometer ($t_R$), the adjustment is carried out according to the principle of full-wave control or generalized phase control.

Note:

In the case of ohmic loads, the power is set linear to the setpoint value. During operation of inductive loads, the power control is no longer proportional and linear due to the phase shift between current and voltage.

***Full-wave control***

In this operating mode the output is adjusted to the required setpoint value by changing the on-to-off period. The period duration is predefined at 1 s.

Notes:

The use of 1-pole solid-state switching devices with converters, power controllers or power regulators of loads in a three-phase network in full-wave control mode is not recommended.
As mutual synchronization of the function modules is not possible, fluctuations in the heating power are possible; there is no optimum settling in particular with setpoint values < 50%.

***Generalized phase control***

In this operating mode the output is adjusted to the required setpoint value by changing the current flow angle. In order to observe the limit values of the conducted interference voltage for industrial networks, at loads up to 20 kVA, the load circuit must include an additional filter, and for loads above 20 kVA, a reactor with a rating of at least 200 µH must be used. You will find details about the filters in the FAQ "Filters for 3RF29 power regulators and power controllers to comply with the limits for electromagnetic emitted interference", see https://support.industry.siemens.com/cs/ww/en/view/109751887.

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## SIRIUS power regulators for 3RF2

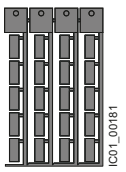
### Selection and ordering data

| Rated operational current $I_e$ | Rated operational voltage $U_e$ | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| A | V | Article No. / Price per PU | | | |
| **Power regulators** | | | | | |
| Rated control supply voltage 24 V AC/DC | | | | | |
| 20 | 110 ... 230 | **3RF2920-0HA13** | 1 | 1 unit | 41C |
| 20 | 400 … 600 | **3RF2920-0HA16** | 1 | 1 unit | 41C |
| 50 | 110 ... 230 | **3RF2950-0HA13** | 1 | 1 unit | 41C |
| 50 | 400 … 600 | **3RF2950-0HA16** | 1 | 1 unit | 41C |
| 90 | 110 ... 230 | **3RF2990-0HA13** | 1 | 1 unit | 41C |
| 90 | 400 … 600 | **3RF2990-0HA16** | 1 | 1 unit | 41C |

3RF2920-0HA13

### Accessories

| Version | Article No. / Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|
| **Covers** | | | | |
| **Sealable covers for function modules**<br>(not for converters)<br>For securing against unauthorized adjustment of setting knobs | **3RF2900-0RA88** | 1 | 10 units | 41C |
| **Blank labels** | | | | |
| **Unit labeling plates**<br>For SIRIUS devices[1)] | | | | |
| 10 mm × 7 mm, titanium gray | **3RT2900-1SB10** | 100 | 816 units | 41B |
| 20 mm × 7 mm, titanium gray | **3RT2900-1SB20** | 100 | 340 units | 41B |
| **Adhesive labels**<br>For SIRIUS devices | | | | |
| 19 mm × 6 mm, titanium gray | **3RT2900-1SB60** | 100 | 3060 units | 41B |



3RT2900-1SB20

[1)] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH
(see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information | |
|---|---|
| Industry Mall, see www.siemens.com/product?3RF | Online configurator, see www.siemens.com/sirius/configurators<br>Conversion tool, see www.siemens.com/conversion-tool |

### *Solid-state contactors for switching motors*

Solid-state contactor for direct-on-line starting

The solid-state contactors for switching motors are intended for frequently switching on and off three-phase current operating mechanisms up to 7.5 kW and reversing up to 3.0 kW.
The devices are constructed with complete insulation and can be mounted directly on SIRIUS motor starter protectors, overload relays and current monitoring relays, resulting in a very simple integration into motor feeders.

These 3-phase solid-state contactors are equipped with a 2-phase control which is particularly suitable for typical motor current circuits without connecting to the neutral conductor.

Solid-state contactors for switching motors are available in two versions:

- SIRIUS 3RF34 solid-state contactors, 3-phase:
  These 2-phase controlled, instantaneous switching solid-state contactors in the insulating enclosure are offered with a width of 45 mm up to 5.2 A – and with a width of 90 mm up to 16 A. They allow the operation of motors up to 7.5 kW.
- SIRIUS 3RF34 solid-state reversing contactors, 3-phase:
  The integration of four conducting paths to a reverse switch, combined in one enclosure, makes this device a particularly compact solution. Compared to conventional systems, for which two contactors are required, it is possible to save up to 50% width with the 3-phase reversing contactors. Devices with a width of 45 mm cover motors up to 2.2 kW – and those with a width of 90 mm cover motors up to 3 kW.

Note:

In accordance with the product standard IEC 60947-4-2, the motor contactors are designed for motors with maximum starting current conditions of $I/I_e \leq 8$. For configuring motors with higher starting current conditions (typically $I/I_e > 8$), the data in the Equipment Manual for 3RF34 solid-state switching devices must be taken into account, see https://support.industry.siemens.com/cs/ww/en/view/60298187.

### *Switching functions*

The solid-state contactors for switching motors are "Instantaneous switching", because this method is particularly suited for inductive loads. By distributing the ON point over the entire sine curve of the mains voltage, disturbances are reduced to a minimum.

### *Connection methods*

You can choose between the following connection methods for the solid-state contactors for switching motors:

Screw terminals

The screw connection system is the standard for industrial controls. Open terminals and a plus-minus screw are just two features of this technology. Two conductors of up to 6 mm² can be connected in just one terminal.

Spring-loaded terminals

This innovative technology manages without any screw connection. This means that very high vibration resistance is achieved. Two conductors of up to 2.5 mm² can be connected to each terminal.

### *Motor feeders*

The devices can use a link module to directly connect to a motor starter protector. Also possible is the mounting of a 3RB30/3RB31 electronic overload relay (see page 7/95) or a 3RR2 current monitoring relay (see pages 10/47 and 10/55) using a link adapter. The simultaneous mounting of a motor starter protector and an overload or current monitoring relay is not recommended for space and heat development reasons.

Rapid-switching fuseless and fused motor feeders can thereby be implemented in a time-saving manner.

### *Selecting solid-state contactors*

The solid-state contactors are selected on the basis of details of the network, the load and the ambient conditions.

The following procedure is recommended:

- Determine the rated current of the load and the mains voltage
- Select a solid-state contactor with the same or higher rated current than the load
- Testing of the maximum permissible switching frequency based on the characteristic curves (see "More information" → "Product information", page 6/161). To do this, the starting current, the starting time and the motor load in the operating phase must be known.
- If the permissible switching frequency is under the desired frequency, it is possible to achieve an increase only by overdimensioning the motor and the solid-state contactor!

The correct device size can be determined by entering the network and motor data along with the application and ambient conditions.

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## General data

### *Short-circuit protection*

Despite the rugged power semiconductors that are used, solid-state switching devices respond more sensitively to short circuits in the load feeder. Consequently, special precautions have to be taken against destruction, depending on the type of design.

Siemens generally recommends using SITOR semiconductor fuses. These fuses also provide protection against destruction in the event of a short circuit even when the solid-state contactors and solid-state relays are fully utilized.

Alternatively, if there is lower loading, protection can also be provided by standard fuses or miniature circuit breakers. This protection is achieved by overdimensioning the solid-state switching devices accordingly.

### *Article number scheme*

| Product versions | | Article number | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Solid-state contactors** | | **3RF34** | □ | □ | – | □ | □ | □ | □ | □ | 3-phase | |
| Rated operational current | 3.8 A | | **0** | **3** | | | | | | | Only for reversing contactor | |
| | 5.2 A (5.4 A for reversing contactor) | | **0** | **5** | | | | | | | | |
| | 9.2 A (7.4 A for reversing contactor) | | **1** | **0** | | | | | | | | |
| | 12.5 A | | **1** | **2** | | | | | | | Only for solid-state contactor | |
| | 16 A | | **1** | **6** | | | | | | | Only for solid-state contactor | |
| Connection type | Screw terminals | | | | | **1** | | | | | | |
| | Spring-loaded terminals | | | | | **2** | | | | | | |
| Switching function | Instantaneous switching | | | | | | **B** | | | | | |
| Number of controlled phases | 2-phase | | | | | | | **B** | | | | |
| | Reversing contactor | | | | | | | **D** | | | | |
| Rated control supply voltage $U_s$ | 24 V DC | | | | | | | | **0** | | | |
| | 110 ... 230 V AC | | | | | | | | **2** | | | |
| Rated operational voltage $U_e$ | 48 ... 460 V AC | | | | | | | | | **4** | | |
| | 48 ... 600 V AC | | | | | | | | | **6** | Blocking voltage 1 600 V, only for solid-state contactor | |
| Example | | **3RF34** | **1** | **0** | **–** | **1** | **B** | **B** | **0** | **4** | | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

- Insulated enclosure with integrated heat sink, "ready to use"
- Compact and space-saving design
- Reversing contactors with integrated interlocking
- High degree of protection
- Integrated mounting foot for snapping onto a DIN rail or for mounting on a support plate
- Variety of connection methods
- Plug-in control connection
- Display via LEDs
- Wide voltage range for AC control supply voltage

## Application

### *Use in load feeders*

There is no typical design of a load feeder with solid-state relays or solid-state contactors; instead, the great variety of connection methods and control voltages offers universal application opportunities.

SIRIUS solid-state relays and solid-state contactors can be installed in fuseless or fused feeders, as required.

See Configuration Manual for load feeders, https://support.industry.siemens.com/cs/ww/en/view/39714188.

### *Standards and approvals*

- IEC 60947-4-2
- UL 508, CSA for North America[1)]
- CE marking for Europe
- C-Tick approval for Australia
- CCC approval for China

[1)] Please note: Use overvoltage protection device; max. cut-off-voltage 6 000 V; min. energy handling capability 100 J.

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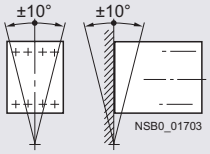
## Technical specifications

| Type | | 3RF3405-1BB..<br>3RF3403-1BD..,<br>3RF3405-1BD.. | 3RF3410-1BB..,<br>3RF3412-1BB..,<br>3RF3416-1BB..<br>3RF3410-1BD.. | 3RF3405-2BB.. | 3RF3410-2BB..,<br>3RF3412-2BB..,<br>3RF3416-2BB.. |
|---|---|---|---|---|---|
| Dimensions (W x H x D) | | | | | |
| • 3RF34..-1BB.. | mm | 45 x 95 x 96.5 | 90 x 95 x 96.5 | 45 x 95 x 96.5 | 90 x 95 x 96.5 |
| • 3RF34..-1BD.. | mm | 45 x 95 x 108.5 | 90 x 95 x 108.5 | -- | -- |
| **General technical specifications** | | | | | |
| **Ambient temperature** | | | | | |
| • During operation, derating from 40 °C | °C | -25 ... +60 | | | |
| • During storage | °C | -55 ... +80 | | | |
| **Installation altitude** | m | 0 ... 1 000; derating over 1 000 m on request | | | |
| **Shock resistance** according to IEC 60068-2-27 | *g*/ms | 15/11 | | | |
| **Vibration resistance** according to IEC 60068-2-6 | *g* | 2 | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front | | | |
| **Insulation strength** at 50/60 Hz (main/control circuit to floor) | V rms | 4 000 | | | |
| **Electromagnetic compatibility (EMC)** | | | | | |
| • Emitted interference according to IEC 60947-4-2 | | | | | |
| - Conducted interference voltage | | Class A for industrial applications[1] | | | |
| - Emitted, high-frequency interference voltage | | Class A for industrial applications | | | |
| • Interference immunity | | | | | |
| - Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV | Contact discharge: 4; air discharge: 8; Behavior criterion 2 | | | |
| - Induced RF fields according to IEC 61000-4-6 | MHz | 0.15 ... 80; 140 dBµV; behavior criterion 1 | | | |
| - Burst according to IEC 61000-4-4 | kV | 2; at 5 kHz; behavior criterion 2 | | | |
| - Surge according to IEC 61000-4-5[2] | kV | Conductor - ground 2; conductor - conductor 1; behavior criterion 2 | | | |
| **Connection type** | | **Screw terminals** | | **Spring-loaded terminals** | |
| **Operating devices** | | Standard screwdriver size 2 and Pozidriv 2 | | 3.0 x 0.5 and 3.5 x 0.5 | |
| **Conductor cross-sections, main contacts** | | | | | |
| • Solid | $mm^2$ | 2 x (1.5 ... 2.5)[3], 2 x (2.5 ... 6)[3] | | 2 x (0.5 ... 2.5) | |
| • Finely stranded with end sleeve | $mm^2$ | 2 x (1 ... 2.5)[3], 2 x (2.5 ... 6)[3], 1 x 10 | | 2 x (0.5 ... 1.5) | |
| • Finely stranded without end sleeve | $mm^2$ | -- | | 2 x (0.5 ... 2.5) | |
| • AWG cables, solid or stranded | AWG | 2 x (14 ... 10) | | 2 x (18 ... 14) | |
| **Conductor cross-sections, auxiliary/control contacts** | | | | | |
| • With/without end sleeve | $mm^2$ | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.0) | | 0.5 ... 2.5 | |
| • AWG cables, solid or stranded | AWG | 20 ... 12 | | 20 ... 12 | |
| **Permissible mounting position** | |  | | | |

[1] These products were built as Class A devices. The use of these devices in residential areas could result in radio interference. In this case it may be required to introduce additional interference suppression measures.

[2] The following applies for reversing contactors: To maintain the values, a 3TX7462-3L surge suppressor should be used between phases L1 and L3 as close as possible to the reversing contactor.

[3] If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

## *More information*

For more information, see

- System Manual for modular system, https://support.industry.siemens.com/cs/ww/en/view/60311318
- Equipment Manual for 3RF34 solid-state switching devices, https://support.industry.siemens.com/cs/ww/en/view/60298187

Product information and technical specifications

For product data sheets with detailed technical specifications and dimensional drawings, see https://support.industry.siemens.com/cs/ww/en/ps/16237/td.

For more information, please enter the article number of the required device under the tab "Product List".

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## SIRIUS 3RF34 solid-state contactors, 3-phase

### Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16237/faq |
| Equipment Manual for 3RF34 solid-state switching devices, see https://support.industry.siemens.com/cs/ww/en/view/60298187 | |

| Type | | 3RF3405-.BB.. | 3RF3410-.BB.. | 3RF3412-.BB.. | 3RF3416-.BB.. |
|---|---|---|---|---|---|
| **Fuseless design with 3RV2 motor starter protector, CLASS 10** | | | | | |
| **Rated operational current $I_{AC-53a}$** [1] According to IEC 60947-4-2 | | | | | |
| • At 40 °C | A | 5.2 (4.5) | 9.2 | 12.5 | 16 |
| • UL/CSA, at 50 °C | A | 4.6 (4.0) | 8.4 | 11.5 | 14 |
| • At 60 °C | A | 4.2 (3.5) | 7.6 | 10.5 | 12.5 |
| **Power loss** at $I_{AC-53a}$ | | | | | |
| • At 40 °C | W | 10 (8) | 16 | 22 | 28 |
| **Short-circuit protection with type of coordination "1"** At operational voltage $U_e$ up to 440 V | | | | | |
| • Motor starter protectors | Type | 3RV2011-1GA10 | 3RV2011-1JA10 | 3RV2011-1KA10 | 3RV2011-4AA10 |
| • Current $I_q$ | kA | 50 | 5 | | 3 |

[1] The reduced values in brackets apply to a directly mounted motor starter protector and simultaneous side-by-side mounting.

| Type | | 3RF3405-.BB.4 | 3RF3405-.BB.6 | 3RF3410-.BB.. | 3RF3412-.BB.4 | 3RF3412-.BB.6 | 3RF3416-.BB.. |
|---|---|---|---|---|---|---|---|
| **Fused design with directly connected 3RB3 overload relay** | | | | | | | |
| **Rated operational current $I_{AC-53a}$** According to IEC 60947-4-2 | | | | | | | |
| • At 40 °C | A | 4 | | 7.8 | 9.5 | | 11 |
| • UL/CSA, at 50 °C | A | 3.6 | | 7 | 8.5 | | 10 |
| • At 60 °C | A | 3.2 | | 6.2 | 7.6 | | 9 |
| **Power loss** at $I_{AC-53a}$ | | | | | | | |
| • At 40 °C | W | 7 | | 13 | 16 | | 18 |
| **Minimum load current** | A | 0.1 | 0.5 | | | | |
| **Max. off-state current** | mA | 10 | | | | | |
| **Rated peak withstand current $I_{tsm}$** | A | 200 | 600 | | 1 200 | 1 150 | |
| **$I^2t$ value** | $A^2s$ | 200 | 1 800 | | 7 200 | 6 600 | |

| Type | | 3RF34..-.BB.4 | 3RF34..-.BB.6 |
|---|---|---|---|
| **Main circuit** | | | |
| **Controlled phases** | | 2-phase | |
| **Rated operational voltage $U_e$** | V AC | 48 ... 480 | 48 ... 600 |
| • Operating range | V AC | 40 ... 506 | 40 ... 660 |
| • Rated frequency | Hz | 50/60 ± 10% | |
| **Rated insulation voltage $U_i$** | V | 600 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | |
| **Blocking voltage** | V | 1 200 | 1 600 |
| **Rate of voltage rise** | V/µs | 1 000 | |

| Type | | 3RF34..-.BB0. | 3RF34..-.BB2. |
|---|---|---|---|
| **Control circuit** | | | |
| **Method of operation** | | DC operation | AC operation |
| **Rated control supply voltage $U_s$** | V | 24 | 110 ... 230 |
| **Rated frequency** of the control supply voltage | Hz | -- | 50/60 ± 10% |
| **Control supply voltage, max.** | V | 30 | 253 |
| **Typical actuating current** | mA | 20 | 15 |
| **Response voltage** | V | 15 | 90 |
| **Drop-out voltage** | V | 5 | < 40 |
| **Operating times** | | | |
| • ON-delay | ms | 1 | 5 |
| • OFF-delay | ms | 1 + max. one half-wave | 30 + max. one half-wave |

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## Selection and ordering data

### *Motor contactors · Instantaneous switching · 2-phase controlled*

| Rated operational current $I_e$ | Rated power at $I_e$ and $U_e$ | Rated control supply voltage $U_s$ | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| A | 400 V kW | V | Article No. — Price per PU | | | |
| **Rated operational voltage $U_e$ 48 ... 480 V AC** | | | | | | |
| 5.2 | **2.2** | 24 DC | **3RF3405-1BB04** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-1BB04** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-1BB04** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-1BB04** | 1 | 1 unit | 41C |
| 5.2 | **2.2** | 110 ... 230 AC | **3RF3405-1BB24** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-1BB24** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-1BB24** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-1BB24** | 1 | 1 unit | 41C |

3RF3405-1BB

| | | | | | | |
|---|---|---|---|---|---|---|
| **Rated operational voltage $U_e$ 48 ... 600 V AC, blocking voltage 1 600 V** | | | | | | |
| 5.2 | **2.2** | 24 DC | **3RF3405-1BB06** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-1BB06** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-1BB06** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-1BB06** | 1 | 1 unit | 41C |
| 5.2 | **2.2** | 110 ... 230 AC | **3RF3405-1BB26** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-1BB26** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-1BB26** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-1BB26** | 1 | 1 unit | 41C |

3RF3410-1BB

| Rated operational current $I_e$ | Rated power at $I_e$ and $U_e$ | Rated control supply voltage $U_s$ | Spring-loaded terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| A | 400 V kW | V | Article No. — Price per PU | | | |
| **Rated operational voltage $U_e$ 48 ... 480 V AC** | | | | | | |
| 5.2 | **2.2** | 24 DC | **3RF3405-2BB04** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-2BB04** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-2BB04** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-2BB04** | 1 | 1 unit | 41C |
| 5.2 | **2.2** | 110 ... 230 AC | **3RF3405-2BB24** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-2BB24** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-2BB24** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-2BB24** | 1 | 1 unit | 41C |

3RF3405-2BB

| | | | | | | |
|---|---|---|---|---|---|---|
| **Rated operational voltage $U_e$ 48 ... 600 V AC, blocking voltage 1 600 V** | | | | | | |
| 5.2 | **2.2** | 24 DC | **3RF3405-2BB06** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-2BB06** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-2BB06** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-2BB06** | 1 | 1 unit | 41C |
| 5.2 | **2.2** | 110 ... 230 AC | **3RF3405-2BB26** | 1 | 1 unit | 41C |
| 9.2 | **4.0** | | **3RF3410-2BB26** | 1 | 1 unit | 41C |
| 12.5 | **5.5** | | **3RF3412-2BB26** | 1 | 1 unit | 41C |
| 16 | **7.5** | | **3RF3416-2BB26** | 1 | 1 unit | 41C |

3RF3410-2BB



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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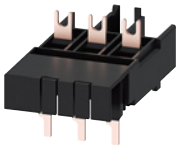
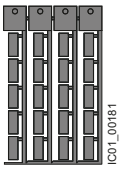
## SIRIUS 3RF34 solid-state contactors, 3-phase

### Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Link modules between solid-state contactor and motor starter protector** | | | | | | |
|  3RA2921-1BA00 | **Link modules**<br>Between solid-state contactor and motor starter protector with screw terminals<br>For 3RV2 motor starter protectors size S00/S0 | **Screw terminals**<br>**3RA2921-1BA00** | | 1 | 1 unit | 41B |
| **Link adapters between solid-state contactor and overload relay** | | | | | | |
| 3RF3900-0QA88 | **Link adapters**<br>For direct mounting of 3RB3 overload relays or 3RR2 current monitoring relays to the solid-state contactor with screw terminals<br>The adapter is snapped onto the enclosure of the 3RF34 contactor and accommodates the fixing hooks of the 3RB3 overload relays or the 3RR2 current monitoring relays for direct mounting. | **3RF3900-0QA88** | | 1 | 1 unit | 41C |
| **Insulation stop for securely holding back the conductor insulation, on conductors up to 1 mm²** | | | | | | |
| 3RT2916-4JA02 | **Insulation stop strip**<br>For all SIRIUS devices with spring-loaded terminals<br>Can be inserted in the cable entry of the spring-loaded terminal (no more than two strips per contactor required; removable in pairs)<br>For terminals with a conductor cross-section up to 2.5 mm² | **Spring-loaded terminals**<br>**3RT2916-4JA02** | | 1 | 20 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals<br>Length approx. 200 mm, size 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Control connectors** | | | | | | |
| 3RF2900-2TB88 | **Control connectors**<br>For solid-state contactors with spring-loaded terminals<br>With two clamping points per contact | **3RF2900-2TB88** | | 1 | 10 units | 41C |
| **Blank labels** | | | | | | |
|   3RT2900-1SB20 | **Unit labeling plates**<br>For SIRIUS devices[1] | | | | | |
| | 10 mm x 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| | 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | **Adhesive labels**<br>For SIRIUS devices | | | | | |
| | 19 mm x 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | Equipment Manual for 3RF34 solid-state switching devices, see https://support.industry.siemens.com/cs/ww/en/view/60298187<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16237/faq |

| Type | | 3RF3403-.BD.4 | 3RF3405-.BD.4 | 3RF3410-.BD.4 |
|---|---|---|---|---|
| **Fuseless design with 3RV2 motor starter protector, CLASS 10** | | | | |
| **Rated operational current $I_{AC-53a}$**[1] According to IEC 60947-4-2 | | | | |
| • At 40 °C | A | 3.8 (3.4) | 5.4 (4.8) | 7.4 |
| • UL/CSA, at 50 °C | A | 3.5 (3.1) | 5 (4.3) | 6.8 |
| • At 60 °C | A | 3.2 (2.8) | 4.6 (3.8) | 6.2 |
| **Power loss** at $I_{AC-53a}$ | | | | |
| • At 40 °C | W | 7 (6) | 9 (8) | 13 |
| **Short-circuit protection with type of coordination "1"** At operational voltage $U_e$ up to 440 V | | | | |
| • Motor starter protectors | Type | 3RV2011-1FA10 | 3RV2011-1GA10 | 3RV2011-1JA10 |
| • Current $I_q$ | kA | 50 | | 10 |

[1] The reduced values in brackets apply to a directly mounted motor starter protector and simultaneous side-by-side mounting.

| Type | | 3RF3403-.BD.4 | 3RF3405-.BD.4 | 3RF3410-.BD.4 |
|---|---|---|---|---|
| **Fused design with directly connected 3RB3 overload relay** | | | | |
| **Rated operational current $I_{AC-53a}$** According to IEC 60947-4-2 | | | | |
| • At 40 °C | A | 3.8 | 5.4 | 7.4 |
| • UL/CSA, at 50 °C | A | 3.5 | 5 | 6.8 |
| • At 60 °C | A | 3.2 | 4.6 | 6.2 |
| **Power loss** at $I_{AC-53a}$ | | | | |
| • At 40 °C | W | 6 | 8 | 16 |
| **Minimum load current** | A | 0.5 | | |
| **Max. off-state current** | mA | 10 | | |
| **Rated peak withstand current $I_{tsm}$** | A | 200 | 600 | |
| **$I^2t$ value** | $A^2s$ | 200 | 1 800 | |

| Type | | 3RF34..-.BD.4 |
|---|---|---|
| **Main circuit** | | |
| **Controlled phases** | | 2-phase |
| **Rated operational voltage $U_e$**[1] | V AC | 48 ... 480 |
| • Operating range | V AC | 40 ... 506 |
| • Rated frequency | Hz | 50/60 ± 10% |
| **Rated insulation voltage $U_i$** | V | 600 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Blocking voltage** | V | 1 200 |
| **Rate of voltage rise** | V/µs | 1 000 |

[1] To reduce the risk of a phase short circuit due to overvoltage, we recommend using a varistor type 3TX7462-3L between the phases L1 and L3 as close as possible to the switchgear.

We recommend a design with semiconductor protection as short-circuit protection.

| Type | | 3RF34..-.BD0. | 3RF34..-.BD2. |
|---|---|---|---|
| **Control circuit** | | | |
| **Method of operation** | | DC operation | AC operation |
| **Rated control supply voltage $U_s$** | V | 24 | 110 ... 230 |
| **Rated frequency** of the control supply voltage | Hz | -- | 50/60 ± 10% |
| **Control supply voltage, maximum** | V | 30 | 253 |
| **Typical actuating current** | mA | 15 | 10 |
| **Response voltage** | V | 15 | 90 |
| **Drop-out voltage** | V | 5 | < 40 |
| **Operating times**[1] | | | |
| • ON-delay | ms | 5 | 20 |
| • OFF-delay | ms | 5 + max. one half-wave | 10 + max. one half-wave |
| • Interlocking time | ms | 60 ... 100 | 50 ... 100 |

[1] Notice! Risk of phase short circuit in automatic mode. The control inputs must not be actuated until a delay of 40 ms has expired after the main voltage is applied.

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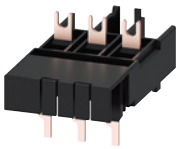
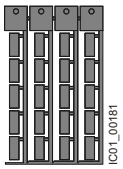
## SIRIUS 3RF34 solid-state reversing contactors, 3-phase *IE3/IE4 ready*

### Selection and ordering data

***Reversing contactors · Instantaneous switching · 2-phase controlled***

| | Rated operational current $I_e$ | Rated power at $I_e$ and $U_e$ | Rated control supply voltage $U_s$ | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | A | 400 V kW | V | Article No. Price per PU | | | |
| **Rated operational voltage $U_e$ 48 ... 480 V AC** | | | | | | | |
| 3RF3403-1BD | 3.8 | **1.5** | 24 DC | **3RF3403-1BD04** | 1 | 1 unit | 41C |
| | 5.4 | **2.2** | | **3RF3405-1BD04** | 1 | 1 unit | 41C |
| | 7.4 | **3.0** | | **3RF3410-1BD04** | 1 | 1 unit | 41C |
| 3RF3410-1BD | 3.8 | **1.5** | 110 ... 230 AC | **3RF3403-1BD24** | 1 | 1 unit | 41C |
| | 5.4 | **2.2** | | **3RF3405-1BD24** | 1 | 1 unit | 41C |
| | 7.4 | **3.0** | | **3RF3410-1BD24** | 1 | 1 unit | 41C |

### Accessories

| | Version | Article No. Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Link modules between solid-state contactor and motor starter protector** | | | | | |
|  3RA2921-1BA00 | **Link modules** Between solid-state reversing contactor and motor starter protector with screw terminals | **Screw terminals** | | | |
| | For 3RV2 motor starter protectors, size S00/S0 | **3RA2921-1BA00** | 1 | 1 unit | 41B |
| **Link adapters between solid-state contactor and overload relay** | | | | | |
| 3RF3900-0QA88 | **Link adapters** For direct mounting of 3RB3 overload relays or 3RR2 current monitoring relays to the solid-state contactor with screw terminals | | | | |
| | The adapter is snapped onto the enclosure of the 3RF34 contactor and accommodates the fixing hooks of the 3RB3 overload relays or the 3RR2 current monitoring relays for direct mounting. | **3RF3900-0QA88** | 1 | 1 unit | 41C |
| **Blank labels** | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates** For SIRIUS devices[1] | | | | |
| | 10 mm x 7 mm, titanium gray | **3RT2900-1SB10** | 100 | 816 units | 41B |
| | 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | 100 | 340 units | 41B |
| | **Adhesive labels** For SIRIUS devices | | | | |
| | 19 mm x 6 mm, titanium gray | **3RT2900-1SB60** | 100 | 3060 units | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | |
|---|---|
| | **Price groups** |
| | PG 12P, 14O, 41B, 41E, 41F, 41G, 41H, 41J, 42F, 42J |
| 7/2 | **Introduction** |
| | **Motor starter protectors/ circuit breakers** |
| | SIRIUS 3RV2 motor starter protectors/circuit breakers |
| 7/6 | General data |
| 7/27 | For motor protection |
| 7/35 | For motor protection with overload relay function |
| 7/37 | For starter combinations |
| 7/40 | For transformer protection |
| 7/44 | For system protection |
| 7/45 | For system protection according to UL 489/CSA C22.2 No. 5 |
| 7/46 | For transformer protection according to UL 489/CSA C22.2 No. 5 |
| | Accessories |
| 7/47 | - Mountable accessories |
| 7/50 | - Busbar accessories |
| 7/54 | - Rotary operating mechanisms |
| 7/57 | - Mounting accessories |
| 7/64 | - Enclosures and front plates |
| 7/67 | 3RV29 infeed system |
| | SIRIUS 3RV1 motor starter protectors/circuit breakers |
| 7/73 | For fuse monitoring |
| 7/74 | For distance protection |
| 7/75 | For motor protection |
| | **Overload relays** |
| 7/76 | General data |
| | SIRIUS 3RU2 thermal overload relays |
| 7/83 | 3RU2 for standard applications |
| 7/93 | Accessories |
| | SIRIUS 3RB3 electronic overload relays |
| 7/95 | 3RB30, 3RB31 for standard applications |
| 7/105 | Accessories |
| | SIRIUS 3RB2 electronic overload relays |
| 7/107 | 3RB20, 3RB21 for standard applications |
| 7/117 | Accessories for 3RB20, 3RB21 |
| 7/119 | 3RB22, 3RB23 for high-feature applications |
| 7/127 | 3RB24 for IO-Link for high-feature applications |
| 7/134 | Current measuring modules for 3RB22, 3RB23 and 3RB24 |
| 7/138 | Accessories for 3RB22, 3RB23, 3RB24 |

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## Introduction

### Overview

| Type | | 3RV20 | 3RV21 | 3RV23 | 3RV24 | 3RV27 | 3RV28 |
|---|---|---|---|---|---|---|---|
| **SIRIUS 3RV2 motor starter protectors/circuit breakers** | | | | | | | |
| **Applications** | | | | | | | |
| • System protection | | ✓[1]/ 3RV20..-.....-0DA0[2] | ✓[1] | -- | -- | ✓ | ✓ |
| • Motor protection | | ✓ | -- | -- | -- | -- | -- |
| • Motor protection with overload relay function | | -- | ✓ | -- | -- | -- | -- |
| • Starter combinations | | -- | -- | ✓ | -- | -- | -- |
| • Transformer protection | | -- | -- | -- | ✓/ 3RV24..-.....-0DA0[2] | -- | ✓ |
| **Size** | | S00, S0, S2, S3 | S00, S0, S2, S3 | S00, S0, S2, S3 | S00, S0, S2 | S00, S0, S3 | S00, S0 |
| **Rated current $I_n$** | | | | | | | |
| • Size S00 | A | Up to 16 | Up to 16 | Up to 16 | Up to 16 | Up to 15 | Up to 15 |
| • Size S0 | A | Up to 40 | Up to 32 | Up to 40 | Up to 25 | Up to 22 | Up to 22 |
| • Size S2 | A | Up to 80 | Up to 80 | Up to 80 | Up to 65 | -- | -- |
| • Size S3 | A | Up to 100 | Up to 100 | Up to 100 | -- | Up to 70 | -- |
| **Rated operational voltage $U_e$ according to IEC** | V | 690 AC[3] | 690 AC[3] | 690 AC[3] | 690 AC[3] | 690 AC | 690 AC |
| **Rated frequency** | Hz | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| **Trip class** | | CLASS 10 (S00 ... S3), CLASS 20 (S2, S3) | CLASS 10 | -- | CLASS 10 | -- | -- |
| **Thermal overload release** | A<br>A | 0.11 ... 0.16 to<br>80 ... 100 | 0.11 ... 0.16 to<br>80 ... 100 | None[4] | 0.11 ... 0.16 to<br>54 ... 65 | 0.16 ... 70<br>Non-adjustable | 0.16 ... 22<br>Non-adjustable |
| **Electronic release**<br>A multiple of the rated current | | 13 times | 13 times | 13 times | 20 times | 13 times | 20 times |
| **Short-circuit breaking capacity $I_{cu}$ at 400 V AC** | kA | 20/55/65/100 | 55/65/100 | 20/55/65/100 | 55/65/100 | [5] | [5] |
| **Pages** | | 7/27 ... 7/34 | 7/35, 7/36 | 7/37 ... 7/39 | 7/40, 7/41 | 7/45 | 7/46 |

| **Accessories** | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **For sizes** | S00 | S0 | S2 | S3 | S00 | S0 | S2 | S3 | S00 | S0 | S2 | S3 | S00 | S0 | S2 | S00 | S0 | S3 | S00 | S0 |
| Auxiliary switches | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓[6] | ✓ | ✓ |
| Signaling switches | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- | -- |
| Undervoltage releases | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Shunt releases | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Isolator modules | ✓ | ✓ | ✓ | -- | ✓ | ✓ | ✓ | -- | ✓ | ✓ | ✓ | -- | ✓ | ✓ | ✓ | -- | -- | -- | -- | -- |
| Insulated 3-phase busbar system | ✓ | ✓ | ✓ | -- | -- | -- | ✓ | -- | ✓ | ✓ | ✓ | -- | ✓ | ✓ | ✓ | ✓ | ✓ | -- | ✓ | ✓ |
| Busbar adapters | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -- | -- |
| Door-coupling rotary operating mechanisms | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Link modules | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- | -- |
| Enclosures for surface mounting | ✓ | ✓ | ✓ | -- | ✓ | ✓ | ✓ | -- | ✓ | ✓ | ✓ | -- | ✓ | ✓ | ✓ | -- | -- | -- | -- | -- |
| Enclosures for flush mounting | ✓ | ✓ | -- | -- | ✓ | ✓ | -- | -- | ✓ | ✓ | -- | -- | ✓ | ✓ | -- | -- | -- | -- | -- | -- |
| Front plates | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- | -- |
| Infeed system | ✓ | ✓ | -- | -- | -- | -- | -- | -- | ✓ | ✓ | -- | -- | ✓ | ✓ | -- | ✓ | ✓ | -- | ✓ | ✓ |
| Sealable scale covers for setting knobs | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- | ✓ | ✓ | ✓ | -- | -- | -- | -- | -- |
| **Pages** | 7/47 ... 7/66 | | | | | | | | | | | | | | | | | | | |

✓ Has this function or can use this accessory

-- Does not have this function or cannot use this accessory

1) For symmetrical loading of the three phases.

2) For 1-phase, 2-phase and 3-phase asymmetrical loading of the three phases.

3) With molded-plastic enclosure 500 V AC.

4) For overload protection of the motors, appropriate overload relays must be used.

5) According to UL 489 at 480 Y/277 V AC: 65 kA or 50 kA.

6) Only lateral auxiliary switches can be used

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| | | | | |
|---|---|---|---|---|
| | | | | |
| Type | | **3RV1611-0BD10** | **3RV1611-1.G14** | **3RV1011** |
| **SIRIUS 3RV1 motor starter protectors/circuit breakers** | | | | |
| **Applications** | | | | |
| • Motor protection | | -- | -- | ✓ |
| • Fuse monitoring | | ✓ | -- | -- |
| • Voltage transformer circuit breakers for distance protection | | -- | ✓ | -- |
| **Size** | | S00 | S00 | S00 |
| **Rated current $I_n$** | A | 0.2 | Up to 3 | Up to 12 |
| **Rated operational voltage $U_e$ according to IEC** | V | 690 AC[1)] | 400 AC | 690 AC |
| **Rated frequency** | Hz | 50/60 | $16^2/_3$ ... 60 | 50/60 |
| **Trip class** | | -- | -- | CLASS 10 |
| **Thermal overload release** | A | 0.2 | 1.4 ... 3 | 0.11 ... 0.16 to 9 ... 12 |
| **Electronic release** | | | | |
| A multiple of the rated current | | 6 times | 4 ... 7 times | 13 times |
| **Short-circuit breaking capacity $I_{cu}$ at 400 V AC** | kA | 100 | 50 | 100/50 |
| **Pages** | | 7/73 | 7/74 | 7/75 |
| **Accessories** | | | | |
| **For sizes** | | S00 | S00 | S00 |
| **Auxiliary switches** | | ✓ | ✓ | ✓ |
| **Further accessories** | | -- | -- | ✓ |
| **Pages** | | 7/73 | 7/74 | 7/47 ... 7/72 |

✓ Has this function or can use this accessory

-- Does not have this function or cannot use this accessory

1) With molded-plastic enclosure 500 V AC.

7

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## Introduction

| Type | | Thermal overload relays for standard applications 3RU21 | Electronic overload relays for standard applications 3RB30 | 3RB31 |
|---|---|---|---|---|
| **SIRIUS overload relays** | | | | |
| **Applications** | | | | |
| • System protection | | ✓[1] | ✓[1] | ✓[1] |
| • Motor protection | | ✓ | ✓ | ✓ |
| • Alternating current, 3-phase | | ✓ | ✓ | ✓ |
| • Alternating current, 1-phase | | ✓ | -- | -- |
| • Direct current | | ✓ | -- | -- |
| **Size contactor** | | S00, S0, S2, S3 | S00, S0, S2, S3 | S00, S0, S2, S3 |
| **Rated operational current $I_e$** | | | | |
| • Size S00 | A | Up to 16 | Up to 16 | Up to 16 |
| • Size S0 | A | Up to 40 | Up to 40 | Up to 40 |
| • Size S2 | A | Up to 80 | Up to 80 | Up to 80 |
| • Size S3 | A | Up to 100 | Up to 115 | Up to 115 |
| **Rated operational voltage $U_e$** | V | 690 AC | 690 AC | 690 AC |
| **Rated frequency** | Hz | 50/60 | 50/60 | 50/60 |
| **Trip class** | | CLASS 10, 10A | CLASS 10E, 20E | CLASS 5E, 10E, 20E, 30E (adjustable) |
| **Thermal overload release** | A<br>A | 0.11 ... 0.16 to<br>80 ... 100 | -- | -- |
| **Electronic overload releases** | A<br>A | -- | 0.1 ... 0.4 to<br>32 ... 115 | 0.1 ... 0.4 to<br>32 ... 115 |
| **Pages** | | 7/89 ... 7/92 | 7/102, 7/103 | 7/104 |

| **Accessories** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **For sizes** | S00 | S0 | S2 | S3 | S00 | S0 | S2 | S3 | S00 | S0 | S2 | S3 |
| Terminal supports for stand-alone installation | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Mechanical RESET | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cable releases for RESET | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Electrical Remote RESET | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- | Integrated in the unit | | | |
| Terminal covers for box terminal | -- | -- | ✓ | ✓ | -- | -- | ✓ | ✓ | -- | -- | ✓ | ✓ |
| Sealable covers for setting knobs | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Pages** | 7/93, 7/94 | | | | 7/105, 7/106 | | | | 7/105, 7/106 | | | |

✓ Has this function or can use this accessory

-- Does not have this function or cannot use this accessory

[1] The units are responsible in the main circuit for overload protection of the assigned electrical loads (e.g. motors), feeder cable, and other switching and protection devices in the respective load feeder.

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| Type | | Electronic overload relays for standard applications<br>**3RB20** | <br>**3RB21** | for high-feature applications<br>**3RB22, 3RB23** | Electronic overload relays for IO-Link for high-feature applications<br>**3RB24** |
|---|---|---|---|---|---|
| **SIRIUS overload relays** | | | | | |
| **Applications** | | | | | |
| • System protection | | ✓[1] | ✓[1] | ✓[1] | |
| • Motor protection | | ✓ | ✓ | ✓ | |
| • Alternating current, 3-phase | | ✓ | ✓ | ✓ | |
| • Alternating current, 1-phase | | -- | -- | ✓ | |
| • Direct current | | -- | -- | -- | |
| **Size contactor** | | S6 ... S12 | S6 ... S12 | S00 ... S12 | |
| **Rated operational current $I_e$** | | | | | |
| • Sizes S00 and S0 | A | -- | -- | Up to 25 and 45 mm width with current measuring modules 3RB2906-2BG1/3RB2906-2DG1 | |
| • Size S2 | A | -- | -- | Up to 100 and 55 mm width with current measuring module 3RB2906-2JG1 | |
| • Size S3 | A | -- | -- | | |
| • Size S6 | A | Up to 200 | Up to 200 | Up to 200 and 120 mm width with current measuring modules 3RB2956-2TH2/3RB2956-2TG2 | |
| • Size S10/S12 | A | Up to 630 | Up to 630 | Up to 630 and 145 mm width with current measuring module 3RB2966-2WH2 | |
| • Size 14 (3TF68/3TF69) | A | Up to 630 | Up to 630 | Up to 820 with current measuring module 3RB2906-2BG1 and transformer 3UF1868-3GA00 | |
| **Rated operational voltage $U_e$** | V | 690/1 000 AC | 690/1 000 AC | 690/1 000 AC[2] | |
| **Rated frequency** | Hz | 50/60 | 50/60 | 50/60 | |
| **Trip class** | | CLASS 10, 20 | CLASS 5, 10, 20, 30 adjustable | CLASS 5, 10, 20, 30 adjustable | |
| **Thermal overload release** | A | -- | -- | -- | |
| **Electronic overload releases** | A<br>A | 50 ... 200 to<br>160 ... 630 | 50 ... 200 to<br>160 ... 630 | 0.3 ... 3 to<br>63 ... 630 | |
| **Pages** | | 7/114, 7/115 | 7/116 | 7/125, 7/126, 7/137 | 7/133, 7/137 |

| **Accessories** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **For sizes** | S6 | S10/S12 | S6 | S10/S12 | S00 | S0 | S2 | S3 | S6 | S10/S12 |
| Terminal supports for stand-alone installation | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] | [3] |
| Mechanical RESET | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- | -- | -- |
| Cable releases for RESET | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- | -- | -- |
| Electrical Remote RESET | -- | -- | Integrated in the unit | | Integrated in the unit | | | | | |
| Terminal covers | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | ✓ | ✓ | ✓ |
| Sealable covers for setting knobs | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Operator panel for 3RB24 evaluation module | -- | -- | -- | -- | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Pages** | 7/117, 7/118 | | 7/117, 7/118 | | 7/137 ... 7/139 | | | | | |

✓ Has this function or can use this accessory

-- Does not have this function or cannot use this accessory

[1] The units are responsible in the main circuit for overload protection of the assigned electrical loads (e.g. motors), feeder cable, and other switching and protection devices in the respective load feeder.

[2] With reference to the 3RB29.6 current measuring modules.

[3] Stand-alone installation without accessories is possible.

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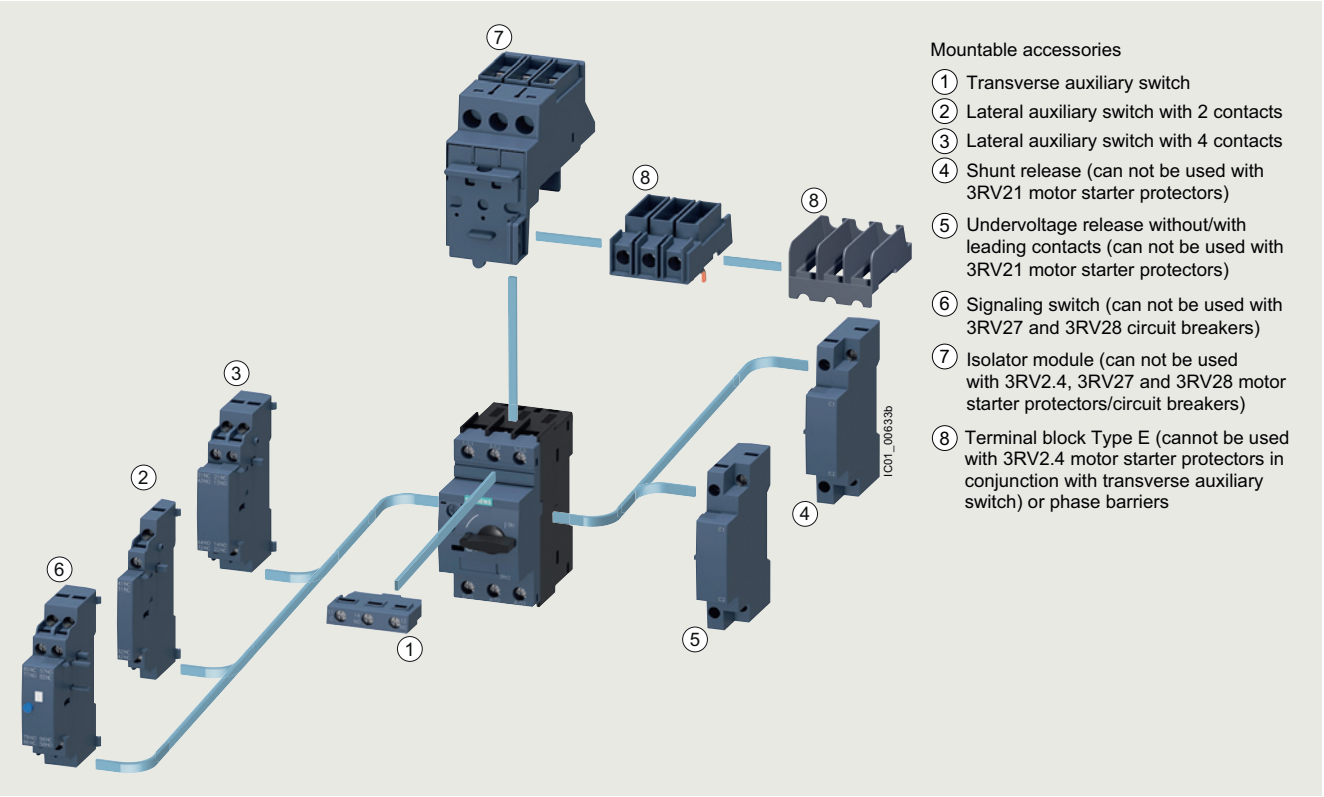
## General data

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-circuit-breakers | Application Manual for switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820 |
| Industry Mall, see www.siemens.com/product?3RV2 | System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=MotorStarterProtector | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60279172 |
| Conversion tool, see www.siemens.com/conversion-tool | Certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16245/cert |

The following illustration shows 3RV2 motor starter protectors/ circuit breakers with the accessories which can be mounted for the sizes S00 to S3, see also "Introduction" → "Overview", page 7/2.

Accessories, see page 7/47 onwards.

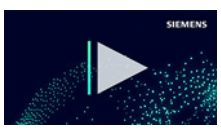



Mountable accessories

1. Transverse auxiliary switch
2. Lateral auxiliary switch with 2 contacts
3. Lateral auxiliary switch with 4 contacts
4. Shunt release (can not be used with 3RV21 motor starter protectors)
5. Undervoltage release without/with leading contacts (can not be used with 3RV21 motor starter protectors)
6. Signaling switch (can not be used with 3RV27 and 3RV28 circuit breakers)
7. Isolator module (can not be used with 3RV2.4, 3RV27 and 3RV28 motor starter protectors/circuit breakers)
8. Terminal block Type E (cannot be used with 3RV2.4 motor starter protectors in conjunction with transverse auxiliary switch) or phase barriers

Mountable accessories for SIRIUS 3RV2 motor starter protectors/circuit breakers

Motor starter protector with spring-loaded terminals, size S0 (left) and motor starter protector with screw terminals, size S00 (right)




Video: SIRIUS 3RV2 circuit breakers - Motor protection for machinery and plants (0.11 to 100 A)

The SIRIUS 3RV2 motor starter protectors/circuit breakers are compact, current limiting motor starter protectors/ circuit breakers which are optimized for load feeders. The motor starter protectors/circuit breakers are used for switching and protecting three-phase motors of up to 55/45 kW at 400 V AC and for other loads with rated currents of up to 100 A.

3RV2 motor starter protectors are usually approved according to IEC and UL/CSA. According to UL 508/UL 60947-4-1, the 3RV2 motor starter protectors/circuit breakers in sizes S00 to S3 are approved as:

- "Manual Motor Controllers"
- "Manual Motor Controllers" for "Group Installations"
- "Manual Motor Controllers Suitable for Tab Conductor Protection in Group Installations"
- "Self-Protected Combination Motor Controllers (Type E)" Please note that for this approval the 3RV20 motor starter protectors must be equipped with additional infeed terminals or phase barriers. For more information, see page 7/57.

Corresponding short-circuit values, see pages 7/9 to 7/17.

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The 3RV2...-.....-0BA0 motor starter protectors/circuit breakers can be used at low ambient temperatures down to -50 °C.

3RV20..-.....-0DA0 motor starter protectors for system protection according to IEC, 3RV24..-.....-0DA0 for transformer protection according to IEC and 3RV27 and 3RV28 circuit breakers according to UL 489 can be used for 1-phase, 2-phase and 3-phase loads, as these motor starter protectors/circuit breakers do not have asymmetry detection.

The 3RV27 and 3RV28 are approved as circuit breakers according to UL 489; they are a special version of the 3RV2 motor starter protectors.

Thanks to their dimensions, the 3RV1011 motor starter protectors are suitable for installation in enclosures or under cramped installation conditions.

### *Type of construction*

The 3RV2 motor starter protectors are available in four sizes:

- Size S00 – width 45 mm,
  max. rated current 16 A,
  at 400 V AC suitable for three-phase motors up to 7.5 kW
- Size S0 – width 45 mm,
  max. rated current 40 A,
  at 400 V AC suitable for three-phase motors up to 18.5 kW
- Size S2 – width 55 mm,
  max. rated current 80 A,
  at 400 V AC suitable for three-phase motors up to 37 kW
- Size S3 – width 70 mm,
  max. rated current 100 A,
  at 400 V AC suitable for three-phase motors up to 45/55 kW

Circuit breakers according to UL 489

The 3RV27 and 3RV28 circuit breakers are available in two or three sizes:

- Size S00 – width 45 mm,
  max. rated current 15 A, for 480 Y/277 V AC
- Size S0 – width 45 mm,
  max. rated current 22 A, for 480 Y/277 V AC
- Size S3 – width 70 mm,
  max. rated current 70 A, for 480 Y/277 V AC

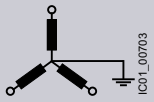
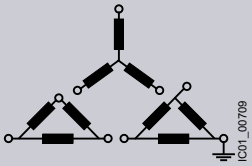
### *Connection methods*

The 3RV2 motor starter protectors/circuit breakers can be supplied with screw terminals and spring-loaded terminals.

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals |
| | The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds. |

### *Voltage data*

The data for 3-phase power systems according to IEC 60947-4-1 are valid for the following line system configurations:

| Voltage $U_e$ | Line system configurations | |
|---|---|---|
| | Three-phase four-wire networks   | Three-phase three-wire networks   |
| V | V | V |
| 230 | -- | 230 |
| 400 | 230/400 | 400 |
| 440 | 260/440 | 440 |
| 500 | -- | 500 |
| 690 | 400/690 | 690 (only as from size S3) |
| 1 000 | -- | 1 000 |

-- Not specified

### *Use in hazardous areas*

The 3RV20 motor starter protectors for motor protection (without 3RV20..-.....-0BA0 and -0DA0) have certification in accordance with both the European Explosion Protection Directive (ATEX) and the International Explosion Protection Standard (IECEx).

In accordance with the European Directive (ATEX), the 3RV20 (without 3RV20..-.....-0BA0 and -0DA0) are able to switch and protect explosion-proof motors of type of protection "Increased Safety EEx e".

In accordance with the international guideline (IECEx), the 3RV20 (without 3RV20..-.....-0BA0 and -0DA0) are able to switch and protect motors of the types "Increased Safety Ex e" or "Flameproof enclosure Ex d".

### *Article number scheme*

| Product versions | | Article number |
|---|---|---|
| **Motor starter protectors/circuit breakers** | | **3RV2** □ □ □ – □ □ □ □ □ – □ □ □ □ |
| Type of motor starter protector/circuit breaker | e.g. 0 = for motor protection/system protection | □ |
| Size | e.g. 1 = 16 A (7.5 kW) for size S00 | □ |
| Breaking capacity | e.g. 1 = standard switching capacity | □ |
| Setting range for overload release | e.g. 1A = 1.1 ... 1.6 A | □ □ |
| Trip class (CLASS) | e.g. A = a (adjustable CLASS 10)/n (13 or 20 x $I$n) | □ |
| Connection methods | e.g. 1 = screw terminals | □ |
| With or without auxiliary switch | e.g. 0 = without | □ |
| Special versions | | □ □ □ □ |
| Example | | **3RV2 0 1 1 – 1 A A 1 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Application

### *Operating conditions*

3RV2 motor starter protectors/circuit breakers are suitable for use in any climate. They are intended for use in enclosed rooms in which no severe operating conditions (such as dust, caustic vapors, hazardous gases) prevail. When installed in dusty and damp areas, suitable enclosures must be provided.

3RV2 motor starter protectors/circuit breakers can optionally be fed from the top or from below.

The permissible ambient temperatures, the maximum switching capacities, the tripping currents and other boundary conditions can be found in the technical specifications and tripping characteristics.

3RV2 motor starter protectors/circuit breakers are suitable for operation in IT systems (IT networks). In this case, the different short-circuit breaking capacity in the IT system must be taken into account, see page 7/11.

Since operational currents, starting currents and current peaks are different even for motors with identical power ratings due to the inrush current, the motor ratings in the selection tables are only guide values. The specific rated and startup data of the motor to be protected are always paramount to the choice of the most suitable motor starter protector/circuit breaker. This also applies to motor starter protectors for transformer protection.

### *Possible uses*

The 3RV motor starter protectors/circuit breakers can be used:

- For short-circuit protection
- For motor protection (also with overload relay function)
- For system protection
- For short-circuit protection for starter combinations
- For transformer protection
- As main and EMERGENCY OFF switches
- For operation in IT systems (IT networks)
- In hazardous areas (ATEX, IECEx)
- As circuit breakers according to UL 489 (3RV27 and 3RV28)
- For fuse monitoring
- For distance protection

### *Use of SIRIUS protection devices in conjunction with IE3 and IE4 motors*

Note:

For the use of 3RV2 motor starter protectors/circuit breakers in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

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## Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60279172 |
| Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188 | Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16245/td |
| | For UL reports for the individual devices, see https://support.industry.siemens.com/cs/ww/en/ps/16245/cert |

### *Short-circuit breaking capacity $I_{cu}$, $I_{cs}$ according to IEC 60947-2*

The table shows the rated ultimate short-circuit breaking capacity $I_{cu}$ and the rated service short-circuit breaking capacity $I_{cs}$ of the 3RV motor starter protectors/circuit breakers with different operational voltages dependent on the rated current $I_n$ of the motor starter protectors/circuit breakers.

Power can be supplied to the motor starter protectors/ circuit breakers via the terminals at the top or at the bottom without restricting the rated data. If the short-circuit current at the installation location exceeds the motor starter protector/ circuit breaker's specified rated short-circuit breaking capacity, you will need to use a back-up fuse. It is also possible to install an upstream motor starter protector/circuit breaker with a limiter function.

The maximum rated current of this back-up fuse is indicated in the tables. The rated ultimate short-circuit breaking capacity then applies as specified on the fuse.

Fuseless design

Motor starter protector/contactor assemblies for short-circuit currents up to 150 kA can be ordered as 3RA2 fuseless load feeders, see page 8/5 onwards.

| Motor starter protectors/ circuit breakers | Rated current $I_n$ | Up to 240 V AC[1] | | | Up to 400 V AC[1]/415 V AC[2] | | | Up to 440 V AC[1]/460 V AC[2] | | | Up to 500 V AC[1]/525 V AC[2] | | | Up to 690 V AC[1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG) | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG)[3] | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG)[3] | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG)[3] | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG)[3][4] |
| Type | A | kA | kA | A | kA | kA | A | kA | kA | A | kA | kA | A | kA | kA | A |
| **Size S00** | | | | | | | | | | | | | | | | |
| **3RV1011** | 0.16 ... 1 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- |
| | 1.25, 1.6 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 2 | 2 | 20 |
| | 2; 2.5 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 10 | 10 | 35 | 2 | 2 | 35 |
| | 3.2; 4 | 100 | 100 | -- | 100 | 100 | -- | 50 | 12.5 | 40 | 3 | 3 | 40 | 2 | 2 | 40 |
| | 5; 6.3 | 100 | 100 | -- | 100 | 100 | -- | 50 | 12.5 | 50 | 3 | 3 | 50 | 2 | 2 | 40 |
| | 8 | 100 | 100 | -- | 50 | 12.5 | 80 | 50 | 12.5 | 63 | 3 | 3 | 63 | 2 | 2 | 50 |
| | 10 | 100 | 100 | -- | 50 | 12.5 | 80 | 10 | 10 | 63 | 3 | 3 | 63 | 2 | 2 | 50 |
| | 12 | 100 | 100 | -- | 50 | 12.5 | 80 | 10 | 10 | 80 | 3 | 3 | 80 | 2 | 2 | 50 |
| **3RV2.11** | 0.16 ... 1.6 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- |
| | 2; 2.5 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 10 | 10 | 25 |
| | 3.2 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 10 | 10 | 32 |
| | 4; 5 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 6 | 4 | 32 |
| | 6.3 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 6 | 4 | 50 |
| | 8 | 100 | 100 | -- | 100 | 100 | -- | 50 | 50 | 63 | 42 | 42 | 63 | 6 | 4 | 50 |
| | 10 | 100 | 100 | -- | 100 | 100 | -- | 50 | 50 | 80 | 42 | 42 | 63 | 6 | 4 | 50 |
| | 12.5 | 100 | 100 | -- | 100 | 100 | -- | 50 | 50 | 80 | 42 | 42 | 80 | 6 | 4 | 63 |
| | 16 | 100 | 100 | -- | 55 | 30 | 100 | 50 | 12.5 | 80 | 10 | 5 | 80 | 4 | 4 | 63 |
| **3RV1611-0BD10** | 0.2 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- |
| **Size S0** | | | | | | | | | | | | | | | | |
| **3RV2.21** | 0.16 ... 1.6 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- |
| | 2; 2.5 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 10 | 10 | 25 |
| | 3.2 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 10 | 10 | 32 |
| | 4; 5 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 6 | 4 | 32 |
| | 6.3 | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 100 | 100 | -- | 6 | 4 | 50 |
| | 8 | 100 | 100 | -- | 100 | 100 | -- | 50 | 50 | 63 | 42 | 42 | 63 | 6 | 4 | 50 |
| | 10 | 100 | 100 | -- | 100 | 100 | -- | 50 | 50 | 80 | 42 | 42 | 63 | 6 | 4 | 50 |
| | 12.5 | 100 | 100 | -- | 100 | 100 | -- | 50 | 50 | 80 | 42 | 42 | 80 | 6 | 4 | 63 |
| | 16 | 100 | 100 | -- | 55 | 25 | 100 | 50 | 12.5 | 80 | 10 | 5 | 80 | 4 | 2 | 63 |
| | 20 | 100 | 100 | -- | 55 | 25 | 125 | 50 | 10 | 80 | 10 | 5 | 80 | 4 | 2 | 63 |
| | 22; 25 | 100 | 100 | -- | 55 | 25 | 125 | 50 | 10 | 100 | 10 | 5 | 80 | 4 | 2 | 63 |
| | 28; 32 | 100 | 100 | -- | 55 | 25 | 125 | 30 | 10 | 125 | 10 | 5 | 100 | 4 | 2 | 100 |
| | 36; 40 | 100 | 100 | -- | 20 | 10 | 125 | 12 | 8 | 125 | 6 | 3 | 100 | 3 | 2 | 100 |

-- No back-up fuse required, since short-circuit-proof up to 100 kA

1) 10% overvoltage.

2) 5% overvoltage.

3) Back-up fuse only required if short-circuit current at the installation location is > $I_{cu}$.

4) Alternatively, fuseless limiter combinations for 690 V AC can also be used.

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## General data

| Motor starter protectors/ circuit breakers | Rated current $I_n$ | Up to 240 V AC[1] | | | Up to 400 V AC[1]/415 V AC[2] | | | Up to 440 V AC[1]/460 V AC[2] | | | Up to 500 V AC[1]/525 V AC[2] | | | Up to 690 V AC[1] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG) | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG)[3] | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG)[3] | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG)[3] | $I_{cu}$ | $I_{cs}$ | Max. fuse (gG)[3][4] |
| Type | A | kA | kA | A | kA | kA | A | kA | kA | A | kA | kA | A | kA | kA | A |
| **Size S2** | | | | | | | | | | | | | | | | |
| **3RV2.31** | 14; 17 | 100 | 100 | -- | 65 | 30 | 100 | 50 | 25 | 100 | 12 | 6 | 63 | 5 | 3 | 63 |
| | 20 | 100 | 100 | -- | 65 | 30 | 100 | 50 | 25 | 100 | 12 | 6 | 80 | 5 | 3 | 80 |
| | 25 | 100 | 100 | -- | 65 | 30 | 100 | 50 | 15 | 100 | 12 | 6 | 80 | 5 | 3 | 80 |
| | 32; 36 | 100 | 100 | -- | 65 | 30 | 125 | 50 | 15 | 125 | 10 | 5 | 100 | 4 | 2 | 100 |
| | 40; 45 | 100 | 100 | -- | 65 | 30 | 160 | 50 | 15 | 125 | 10 | 5 | 100 | 4 | 2 | 100 |
| | 52 | 100 | 100 | -- | 65 | 30 | 160 | 50 | 15 | 125 | 10 | 5 | 125 | 4 | 2 | 125 |
| | 59; 65 | 100 | 100 | -- | 65 | 30 | 160 | 50 | 15 | 160 | 8 | 4 | 125 | 4 | 2 | 125 |
| | 73; 80 | 100 | 100 | -- | 65 | 30 | 200 | 50 | 15 | 200 | 8 | 4 | 160 | 4 | 2 | 125 |
| **Size S2, with increased switching capacity** | | | | | | | | | | | | | | | | |
| **3RV2.32** | 14; 17 | 100 | 100 | -- | 100 | 50 | -- | 65 | 30 | 100 | 18 | 10 | 63 | 8 | 5 | 63 |
| | 20; 25 | 100 | 100 | -- | 100 | 50 | -- | 65 | 30 | 100 | 18 | 10 | 80 | 8 | 5 | 80 |
| | 32 ... 45 | 100 | 100 | -- | 100 | 50 | -- | 65 | 30 | 125 | 15 | 8 | 100 | 6 | 4 | 100 |
| | 52 | 100 | 100 | -- | 100 | 50 | -- | 65 | 30 | 125 | 15 | 8 | 125 | 6 | 4 | 125 |
| | 59; 65 | 100 | 100 | -- | 100 | 50 | -- | 50 | 15 | 160 | 10 | 5 | 125 | 6 | 4 | 125 |
| | 73; 80 | 100 | 100 | -- | 100 | 50 | -- | 50 | 15 | 200 | 10 | 5 | 160 | 6 | 4 | 125 |
| **Size S3** | | | | | | | | | | | | | | | | |
| **3RV2.41** | 40 | 100 | 100 | -- | 65 | 30 | 125 | 65 | 30 | 125 | 12 | 6 | 100 | 6 | 3 | 63 |
| | 50 | 100 | 100 | -- | 65 | 30 | 125 | 65 | 30 | 125 | 12 | 6 | 100 | 6 | 3 | 80 |
| | 63 | 100 | 100 | -- | 65 | 30 | 160 | 65 | 30 | 160 | 12 | 6 | 100 | 6 | 3 | 80 |
| | 75 | 100 | 100 | -- | 65 | 30 | 160 | 65 | 30 | 160 | 8 | 4 | 125 | 5 | 3 | 100 |
| | 84 ... 100 | 100 | 100 | -- | 65 | 30 | 160 | 65 | 30 | 160 | 8 | 4 | 125 | 5 | 3 | 125 |
| **Size S3, with increased switching capacity** | | | | | | | | | | | | | | | | |
| **3RV2.42** | 40 | 100 | 100 | -- | 100 | 50 | -- | 100 | 50 | -- | 18 | 9 | 160 | 12 | 6 | 80 |
| | 50 | 100 | 100 | -- | 100 | 50 | -- | 100 | 50 | -- | 15 | 7.5 | 160 | 10 | 5 | 100 |
| | 63 | 100 | 100 | -- | 100 | 50 | -- | 70 | 50 | 200 | 15 | 7.5 | 160 | 7.5 | 4 | 100 |
| | 75 | 100 | 100 | -- | 100 | 50 | -- | 70 | 50 | 200 | 10 | 5 | 160 | 6 | 3 | 125 |
| | 84 ... 100 | 100 | 100 | -- | 100 | 50 | -- | 70 | 50 | 200 | 10 | 5 | 160 | 6 | 3 | 160 |
| **3RV2742** | 10 ... 70 | 100 | 100 | -- | 100 | 50 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

-- No back-up fuse required, since short-circuit-proof up to 100 kA

1) 10% overvoltage.

2) 5% overvoltage.

3) Back-up fuse only required if short-circuit current at the installation location is > $I_{cu}$.

4) Alternatively, fuseless limiter combinations for 690 V AC can also be used.

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### *Short-circuit breaking capacity $I_{cuIT}$ in the IT system (IT network) according to IEC 60947-2*

3RV motor starter protectors/circuit breakers are suitable for use in IT systems. The values of $I_{cu}$ and $I_{cs}$ apply for the 3-pole short circuit. In the case of a double ground fault in different phases at the input and output side of a motor starter protector/ circuit breaker, the special short-circuit breaking capacity $I_{cuIT}$ applies. The specifications in the table below apply to 3RV motor starter protectors/circuit breakers.

If the short-circuit current at the installation location exceeds the motor starter protector/circuit breaker's specified rated short-circuit breaking capacity, you will need to use a back-up fuse. The maximum rated current of this back-up fuse is indicated in the tables. The rated short-circuit breaking capacity then applies as specified on the fuse.

| Motor starter protectors/ circuit breakers | Rated current $I_n$ | Up to 240 V AC[1] | | Up to 400 V AC[1]/415 V AC[2] | | Up to 440 V AC[1]/460 V AC[2] | | Up to 500 V AC[1]/525 V AC[2] | | Up to 690 V AC[1][3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_{cuIT}$ | Max. fuse (gG)[4] | $I_{cuIT}$ | Max. fuse (gG)[4][5] | $I_{cuIT}$ | Max. fuse (gG)[4] | $I_{cuIT}$ | Max. fuse (gG)[4] | $I_{cuIT}$ | Max. fuse (gG)[4] |
| Type | A | kA | A | kA | A | kA | A | kA | A | kA | A |
| **Size S00** | | | | | | | | | | | |
| **3RV1011** | 0.16 ... 0.4 | 100 | -- | 100 | -- | 100 | -- | 100 | -- | 100 | -- |
| | 0.5 | 100 | -- | 100 | -- | 100 | -- | 100 | -- | 0.5 | 4 |
| | 0.63 | 100 | -- | 100 | -- | 6 | 6 | 6 | 6 | 0.5 | 6 |
| | 0.8 | 100 | -- | 100 | -- | 5 | 6 | 5 | 6 | 0.5 | 6 |
| | 1 | 100 | -- | 4 | 10 | 2 | 10 | 2 | 10 | 0.5 | 10 |
| | 1.25 | 100 | -- | 2 | 20 | 2 | 16 | 2 | 16 | 0.5 | 16 |
| | 1.6 | 100 | -- | 2 | 20 | 2 | 20 | 2 | 20 | 1 | 16 |
| | 2 | 100 | -- | 2 | 35 | 2 | 25 | 2 | 25 | 1 | 20 |
| | 2.5 | 100 | -- | 2 | 35 | 2 | 25 | 2 | 25 | 1 | 25 |
| | 3.2 | 100 | -- | 2 | 40 | 2 | 35 | 2 | 35 | 1 | 25 |
| | 4 | 100 | -- | 2 | 40 | 2 | 35 | 2 | 35 | 1 | 35 |
| | 5 | 100 | -- | 2 | 50 | 2 | 35 | 2 | 35 | 1 | 35 |
| | 6.3 | 100 | -- | 2 | 50 | 2 | 40 | 2 | 40 | 1 | 40 |
| | 8 | 50 | 80 | 2 | 63 | 2 | 40 | 2 | 40 | 1 | 40 |
| | 10 | 50 | 80 | 2 | 63 | 2 | 50 | 2 | 50 | 1 | 50 |
| | 12 | 50 | 80 | 2 | 80 | 2 | 50 | 2 | 50 | 1 | 50 |
| **3RV2.11** | 0.16 ... 0.4 | 100 | -- | 100 | -- | 100 | -- | 100 | -- | 100 | -- |
| | 0.5 | 100 | -- | 100 | -- | 100 | -- | 100 | -- | 0.5 | 4 |
| | 0.63; 0.8 | 100 | -- | 100 | -- | 100 | -- | 100 | -- | 0.5 | 6 |
| | 1 | 100 | -- | 100 | -- | 2 | 10 | 2 | 10 | 1.5 | 10 |
| | 1.25 | 100 | -- | 100 | -- | 2 | 16 | 2 | 16 | 1.5 | 16 |
| | 1.6 | 100 | -- | 100 | -- | 2 | 20 | 2 | 20 | 1.5 | 16 |
| | 2; 2.5 | 100 | -- | 8 | 25 | 2 | 25 | 2 | 25 | 1.5 | 20 |
| | 3.2 | 100 | -- | 8 | 32 | 2 | 32 | 2 | 32 | 1.5 | 25 |
| | 4; 5 | 100 | -- | 4 | 32 | 1.5 | 32 | 1.5 | 32 | 1.5 | 25 |
| | 6.3; 8 | 100 | -- | 4 | 50 | 1 | 40 | 1 | 40 | 1 | 35 |
| | 10 | 100 | -- | 4 | 50 | 1 | 40 | 1 | 40 | 1 | 40 |
| | 12.5 | 100 | -- | 4 | 63 | 1 | 50 | 1 | 50 | 1 | 40 |
| | 16 | 55 | 80 | 4 | 63 | 1 | 50 | 1 | 50 | 1 | 40 |
| **Size S0** | | | | | | | | | | | |
| **3RV2.21** | 0.16 ... 0.4 | 100 | -- | 100 | -- | 100 | -- | 100 | -- | 100 | -- |
| | 0.5 | 100 | -- | 100 | -- | 100 | -- | 100 | -- | 0.5 | 4 |
| | 0.63; 0.8 | 100 | -- | 100 | -- | 100 | -- | 100 | -- | 0.5 | 6 |
| | 1 | 100 | -- | 100 | -- | 2 | 10 | 2 | 10 | 1.5 | 10 |
| | 1.25 | 100 | -- | 100 | -- | 2 | 16 | 2 | 16 | 1.5 | 16 |
| | 1.6 | 100 | -- | 100 | -- | 2 | 20 | 2 | 20 | 1.5 | 16 |
| | 2; 2.5 | 100 | -- | 8 | 25 | 2 | 25 | 2 | 25 | 1.5 | 20 |
| | 3.2 | 100 | -- | 8 | 32 | 2 | 32 | 2 | 32 | 1.5 | 25 |
| | 4; 5 | 100 | -- | 4 | 32 | 1.5 | 32 | 1.5 | 32 | 1.5 | 25 |
| | 6.3; 8 | 100 | -- | 4 | 50 | 1 | 40 | 1 | 40 | 1 | 35 |
| | 10 | 100 | -- | 4 | 50 | 1 | 40 | 1 | 40 | 1 | 40 |
| | 12.5 | 100 | -- | 4 | 63 | 1 | 50 | 1 | 50 | 1 | 40 |
| | 16 | 55 | 80 | 4 | 63 | 1 | 50 | 1 | 50 | 1 | 40 |
| | 20 ... 25 | 55 | 80 | 4 | 63 | 1 | 50 | 1 | 50 | 1 | 50 |
| | 28; 32 | 55 | 80 | 2 | 63 | 1 | 63 | 1 | 63 | 1 | 63 |
| | 36; 40 | 20 | 80 | 2 | 63 | 1 | 63 | 1 | 63 | 1 | 63 |

-- No back-up fuse required, since short-circuit-proof up to 100 kA

1) 5% overvoltage.

2) Without overvoltage.

3) Overvoltage category II applies for applications in IT systems > 600 V.

4) Back-up fuse only required if short-circuit current at installation location is > $I_{cuIT}$.

5) Alternatively, fuseless limiter combinations for 690 V AC can also be used.

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## General data

| Motor starter protectors/ circuit breakers | Rated current $I_n$ | Up to 240 V AC[1] | | Up to 400 V AC[1]/415 V AC[2] | | Up to 440 V AC[1]/460 V AC[2] | | Up to 500 V AC[1]/525 V AC[2] | | Up to 690 V AC[1][3] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $I_{cuIT}$ | Max. fuse (gG)[4] | $I_{cuIT}$ | Max. fuse (gG)[4][5] | $I_{cuIT}$ | Max. fuse (gG)[4] | $I_{cuIT}$ | Max. fuse (gG)[4] | $I_{cuIT}$ | Max. fuse (gG)[4] |
| Type | A | kA | A | kA | A | kA | A | kA | A | kA | A |
| **Size S2** | | | | | | | | | | | |
| **3RV2031, 3RV2131, 3RV2331** | 14 ... 25 | 100 | -- | 8 | 100 | 6 | 80 | 6 | 80 | 4 | 63 |
| | 32 ... 45 | 100 | -- | 6 | 125 | 4 | 100 | 4 | 100 | 3 | 80 |
| | 52 ... 80 | 100 | -- | 4 | 160 | 3 | 125 | 3 | 125 | 2 | 100 |
| **Size S2, with increased switching capacity** | | | | | | | | | | | |
| **3RV2032, 3RV2332** | 14 ... 25 | 100 | -- | 8 | 100 | 6 | 80 | 6 | 80 | 4 | 63 |
| | 32 ... 45 | 100 | -- | 6 | 125 | 6 | 100 | 6 | 100 | 4 | 80 |
| | 52 | 100 | -- | 6 | 160 | 6 | 125 | 6 | 125 | 4 | 100 |
| | 59 ... 80 | 100 | -- | 6 | 160 | 4 | 125 | 4 | 125 | 4 | 100 |
| **Size S3** | | | | | | | | | | | |
| **3RV2.41** | 40 | 65 | 125 | 10 | 63 | 5 | 50 | 5 | 50 | 5 | 50 |
| | 50 | 65 | 125 | 8 | 80 | 3 | 63 | 3 | 63 | 3 | 63 |
| | 63 | 65 | 160 | 6 | 80 | 3 | 63 | 3 | 63 | 3 | 63 |
| | 75 | 65 | 160 | 5 | 100 | 2 | 80 | 2 | 80 | 2 | 80 |
| | 84; 100 | 65 | 160 | 5 | 125 | 2 | 100 | 2 | 100 | 2 | 100 |
| **Size S3, with increased switching capacity** | | | | | | | | | | | |
| **3RV2.42** | 40 | 100 | -- | 12 | 80 | 6 | 63 | 6 | 63 | 6 | 63 |
| | 50 | 100 | -- | 10 | 100 | 4 | 80 | 4 | 80 | 4 | 80 |
| | 63 | 100 | -- | 7.5 | 100 | 4 | 80 | 4 | 80 | 4 | 80 |
| | 75 | 100 | -- | 6 | 125 | 3 | 100 | 3 | 100 | 3 | 100 |
| | 84; 100 | 100 | -- | 6 | 160 | 3 | 125 | 3 | 125 | 3 | 125 |

-- No back-up fuse required, since short-circuit-proof up to 100 kA

1) 10% overvoltage.

2) 5% overvoltage.

3) Overvoltage category II applies for applications in IT systems > 600 V.

4) Back-up fuse only required if short-circuit current at installation location is > $I_{cuIT}$.

5) Alternatively, fuseless limiter combinations for 690 V AC can also be used.

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***Limiter function with standard devices for 500 V AC and 690 V AC according to IEC 60947-2***

The table shows the rated ultimate short-circuit breaking capacity $I_{cu}$ and the rated service short-circuit breaking capacity $I_{cs}$ with an upstream standard motor starter protector/circuit breaker that fulfills the limiter function at voltages 500 V AC and 690 V AC.

The short-circuit breaking capacity can be increased significantly with an upstream standard motor starter protector/circuit breaker with limiter function. The motor starter protector/circuit breaker which is connected downstream must be set to the rated current of the load.

With motor starter protector/circuit breaker assemblies, note the clearance to grounded parts and between the motor starter protectors/circuit breakers. Short-circuit-proof wiring between the motor starter protectors/circuit breakers must be ensured. The motor starter protectors/circuit breakers can be mounted side by side in a modular arrangement.

| **Standard motor starter protectors/circuit breakers** | | **Rated current $I_n$** | **Up to 500 V AC[1]/525 V AC[2]** | | **Up to 690 V AC[1][3]** | |
|---|---|---|---|---|---|---|
| With limiter Rated current $I_n$ | | | $I_{cu}$ | $I_{cs}$ | $I_{cu}$ | $I_{cs}$ |
| Type | Type | A | kA | kA | kA | kA |
| **Size S00** | | | | | | |
| **Size S0:** **3RV2321-4EC10** $I_n$ = 32 A | **3RV2011** | 2 ... 6.3<br>8<br>10 ... 16 | --<br>100<br>100 | --<br>50<br>50 | 50<br>50<br>20[4] | 25<br>25<br>10[4] |
| **Size S2:** **3RV2331-4WC10** $I_n$ = 52 A | **3RV2011** | 10 ... 16 | -- | -- | 50 | 25 |
| **Size S0** | | | | | | |
| **Size S0:** **3RV2321-4EC10** $I_n$ = 32 A | **3RV2021** | 12 ... 32 | 100 | 50 | 20[4] | 10[4] |
| **Size S2:** **3RV2331-4WC10** $I_n$ = 52 A | **3RV2021** | 16 ... 32 | -- | -- | 50 | 20 |
| **Size S2, with increased switching capacity** | | | | | | |
| **Size S2:** **3RV2332-4RC10** $I_n$ = 80 A | **3RV2032** | 14 ... 80 | 100 | 50 | 70 | 35 |
| **Size S3, with increased switching capacity** | | | | | | |
| **Size S3[5]:** **3RV2342-4MC10** $I_n$ = 100 A | **3RV2042** | 40 ... 100 | 100 | 50 | 50 | 25 |

-- No limiter required

1) 10% overvoltage.

2) 5% overvoltage.

3) Use 3RV29.8-1K phase barriers on the infeed side

4) Infeed to the limiter is always on the side 1L1/3L2/5L3.

5) Infeed to the limiter only on the side 2T1/4T2/6T3. Use 3RV2948-1K phase barriers on the infeed side.

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## General data

***Permissible rated data of devices approved for North America (UL/CSA)***

Motor starter protectors of the 3RV2 series are approved for UL/CSA, and according to UL 508/UL 60947-4-1 and CSA C22.2 No. 14/CSA C22.2 No. 60947-4-1 they can be used on their own or as load feeders in combination with a contactor.

These motor starter protectors/circuit breakers can be used as "Manual Motor Controllers" for "Group Installations", as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations" and as "Self-Protected Combination Motor Controllers (Type E)".

3RV motor starter protectors as "Manual Motor Controllers"

If used as a "Manual Motor Controller", the motor starter protector is always operated in combination with an upstream short-circuit protection. Approved fuses or circuit breakers according to UL 489/CSA C22.2 No. 5 may be used for this purpose. These devices must be dimensioned according to the National Electrical Code (UL) or Canadian Electrical Code (CSA).

The file numbers for the approval of the 3RV as a manual motor controller are as follows:

- UL File No. 47705, CCN: NLRV
- CSA Master Contract 165071, Product Class: 3211

| **Motor starter protectors/ circuit breakers** | | **hp rating[1] for FLA[2] max.** | | **Rated current $I_n$** | **240 V AC** | | **480 V AC** | | **600 V AC** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | UL | CSA | UL | CSA | UL | CSA |
| | | | | | $I_{bc}$[3] | $I_{bc}$[3] | $I_{bc}$[3] | $I_{bc}$[3] | $I_{bc}$[3] | $I_{bc}$[3] |
| Type | V | 1-phase | 3-phase | A | kA | kA | kA | kA | kA | kA |
| **Size S00** | | | | | | | | | | |
| **3RV1011** | | | | 0.16 ... 2 | 65 | 65 | 65 | 65 | 10 | 10 |
| | | | | 2.5 | 65 | 65 | 65 | 65 | 10 | 10 |
| FLA[2] max. 12 A, 600 V | 115 | 1/2 | -- | 3.2 | 65 | 65 | 65 | 65 | 10 | 10 |
| | 200 | 1 1/2 | 3 | 4 | 65 | 65 | 65 | 65 | 10 | 10 |
| | 230 | 2 | 3 | 5 | 65 | 65 | 65 | 65 | 10 | 10 |
| | 460 | -- | 7 1/2 | 6.3 | 65 | 65 | 65 | 65 | 10 | 10 |
| | 575/600 | -- | 10 | 8 | 65 | 65 | 65 | 65 | 10 | 10 |
| | | | | 10 | 65 | 65 | 65 | 65 | 10 | 10 |
| | | | | 12 | 65 | 65 | 65 | 65 | 10 | 10 |
| **3RV2011, 3RV2111, 3RV2311, 3RV2411** | | | | 0.16 ... 12.5 | 65 | 65 | 65 | 65 | 30 | 30 |
| | | | | 16 | 65 | 65 | 65 | 65 | -- | -- |
| FLA[2] max. 16 A, 480 V 12.5 A, 600 V | 115/120 | 1 | 2 | | | | | | | |
| | 200/208 | 2 | 3 | | | | | | | |
| | 230/240 | 2 | 5 | | | | | | | |
| | 460/480 | -- | 10 | | | | | | | |
| | 575/600 | -- | 10 | | | | | | | |
| **3RV1611-0BD10** | | | | 0.2 | 65 | 65 | 65 | 65 | 10 | 10 |
| **Size S0** | | | | | | | | | | |
| **3RV2021, 3RV2121, 3RV2321, 3RV2421** | | | | 0.16 ... 12.5 | 65 | 65 | 65 | 65 | 30 | 30 |
| | | | | 16 ... 25 | 65 | 65 | 65 | 65 | --/(30)[4] | --/(30)[4] |
| FLA[2] max. 40 A, 480 V 12.5 A, 600 V | 115/120 | 3 | 5 | 28, 32 | 65 | 65 | 50 | 50 | -- | -- |
| | 200/208 | 5 | 10 | 36, 40 | 65 | 65 | 12 | 12 | -- | -- |
| | 230/240 | 7 1/2 | 10 | | | | | | | |
| | 460/480 | -- | 30 | | | | | | | |
| | 575/600 | -- | -- | | | | | | | |
| **Size S2** | | | | | | | | | | |
| **3RV2031, 3RV2131, 3RV2331, 3RV2431** | | | | 14 ... 36 | 65 | 65 | 65 | 65 | 25 | 25 |
| | | | | 40 ... 52 | 65 | 65 | 65 | 65 | 22 | 22 |
| FLA[2] max. 80 A, 600 V | 115/120 | 7 1/2 | 10 | 59 ... 65 | 65 | 65 | 65[5] | 65[5] | 20[5] | 20[5] |
| | 200/208 | 15 | 25 | 73 ... 80 | 65 | 65 | 65[5] | 65[5] | 20[5] | 20[5] |
| | 230/240 | 15 | 30 | | | | | | | |
| | 460/480 | -- | 60 | | | | | | | |
| | 575/600 | -- | 75 | | | | | | | |
| **Size S2, with increased switching capacity** | | | | | | | | | | |
| **3RV2032, 3RV2332** | | | | 14 ... 36 | 100 | 100 | 100 | 100 | 25 | 25 |
| | | | | 40 ... 52 | 100 | 100 | 100 | 100 | 22 | 22 |
| FLA[2] max. 80 A, 600 V | 115/120 | 7 1/2 | 10 | 59 ... 65 | 100 | 100 | 100[5] | 100[5] | 25[5] | 25[5] |
| | 200/208 | 15 | 25 | 73 ... 80 | 100 | 100 | 100[5] | 100[5] | 25[5] | 25[5] |
| | 230/240 | 15 | 30 | | | | | | | |
| | 460/480 | -- | 60 | | | | | | | |
| | 575/600 | -- | 75 | | | | | | | |
| **Size S3** | | | | | | | | | | |
| **3RV2041, 3RV2142, 3RV2341, 3RV2042, 3RV2342** | | | | 40 ... 75 | 65 | 65 | 65 | 65 | 30 | 30 |
| | | | | 84 ... 100 | 65 | 65 | 65 | 65 | 10/30[6] | 10/30[6] |
| FLA[2] max. 100 A, 600 V | 115/120 | 7 1/2 | 15 | | | | | | | |
| | 200/208 | 15 | 30 | | | | | | | |
| | 230/240 | 20 | 40 | | | | | | | |
| | 460/480 | -- | 75 | | | | | | | |
| | 575/600 | -- | 100 | | | | | | | |

-- No approval

1) hp rating = Power rating in horse power (maximum motor rating).

2) FLA = Full Load Amps (motor full load current).

3) Corresponds to "short-circuit breaking capacity" according to UL/CSA.

4) Values in brackets only apply to 3RV2.23 motor starter protectors.

5) With Class J fuse.

6) With Class J fuse 300 A.

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3RV20 motor starter protectors (up to 100 A) as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations"

The application as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations" is only available for UL. CSA does not recognize this approval! When the motor starter protector is used as a "Manual Motor Controller Suitable for Tap Conductor Protection in Group Installations", it must always be combined with upstream short-circuit protection. Approved fuses or circuit breakers according to UL 489 may be used for this purpose.
These devices must be dimensioned according to the National Electrical Code.

The 3RV20 motor starter protectors are approved as "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations" under the following file number:

- UL File No. 47705, CCN: NLRV

| **Motor starter protectors/ circuit breakers** | | **hp rating[1] for FLA[2] max.** | | **Rated current $I_n$** | **240 V AC** UL $I_{bc}$[3] | **480 Y/277 V AC** UL $I_{bc}$[3] | **600 Y/347 V AC** UL $I_{bc}$[3] |
|---|---|---|---|---|---|---|---|
| Type | V | 1-phase | 3-phase | A | kA | kA | kA |
| **Size S00** | | | | | | | |
| **3RV1011** | | | | 0.16 ... 0.8 | 65 | 65 | 10 |
| | | | | 1 | 65 | 65 | 10 |
| FLA[2] max. 8 A, | 115 | 1/3 | -- | 1.25 | 65 | 65 | 10 |
| 480 V | 200 | 3/4 | 2 | 2 | 65 | 65 | 10 |
| | 230 | 1 | 2 | 2.5 | 65 | 65 | 10 |
| | 460 | -- | 5 | 3.2 | 65 | 65 | 10 |
| | 575/600 | -- | -- | 4 | 65 | 65 | 10 |
| | | | | 5 | 65 | 65 | 10 |
| | | | | 6.3 | 65 | 65 | 10 |
| | | | | 8 | 65 | 65 | 10 |
| **3RV2011** | | | | 0.16 ... 12.5 | 65 | 65 | 30 |
| | | | | 16 | 65 | 65 | -- |
| FLA[2] max. | 115/120 | 1 | 2 | | | | |
| 16 A, 480 V | 200/208 | 2 | 3 | | | | |
| 12.5 A, 600 V | 230/240 | 2 | 5 | | | | |
| | 460/480 | -- | 10 | | | | |
| | 575/600 | -- | 10 | | | | |
| **Size S0** | | | | | | | |
| **3RV2021** | | | | 0.16 ... 12.5 | 65 | 65 | 30 |
| | | | | 16 ... 25 | 65 | 65 | -- |
| FLA[2] max. | 115/120 | 2 | 5 | 28; 32 | 50 | 50 | -- |
| 32 A, 480 V | 200/208 | 3 | 10 | | | | |
| 12.5 A, 600 V | 230/240 | 5 | 10 | | | | |
| | 460/480 | -- | 20 | | | | |
| | 575/600 | -- | -- | | | | |
| **Size S2** | | | | | | | |
| **3RV2031** | | | | 14 ... 36 | 65 | 65 | 25 |
| | | | | 40 ... 52 | 65 | 65 | 22 |
| FLA[2] max. | 115/120 | 7 1/2 | 10 | 59 ... 65 | 65 | 30 | -- |
| 80 A, 480 V | 200/208 | 15 | 25 | 73 | 65 | 20 | -- |
| 52 A, 600 V | 230/240 | 15 | 30 | 80 | 65 | 10 | -- |
| | 460/480 | -- | 60 | | | | |
| | 575/600 | -- | 75 | | | | |
| **Size S2, with increased switching capacity** | | | | | | | |
| **3RV2032** | | | | 14 ... 36 | 100 | 100 | 25 |
| | | | | 40 ... 52 | 100 | 100 | 22 |
| FLA[2] max. | 115/120 | 7 1/2 | 10 | 59 ... 65 | 100 | 42 | -- |
| 80 A, 480 V | 200/208 | 15 | 25 | 73 | 100 | 30 | -- |
| 52 A, 600 V | 230/240 | 15 | 30 | 80 | 100 | 10 | -- |
| | 460/480 | -- | 60 | | | | |
| | 575/600 | -- | 75 | | | | |
| **Size S3** | | | | | | | |
| **3RV2041, 3RV2042** | | | | 40 ... 75 | 65 | 65 | 30 |
| | | | | 84 ... 100 | 65 | 65 | -- |
| FLA[2] max. | 115/120 | 7 1/2 | 15 | | | | |
| 100 A, 480 V | 200/208 | 15 | 30 | | | | |
| 75 A, 600 V | 230/240 | 20 | 40 | | | | |
| | 460/480 | -- | 75 | | | | |
| | 575/600 | -- | 75 | | | | |

-- No approval

1) hp rating = Power rating in horse power (maximum motor rating).

2) FLA = Full Load Amps (motor full load current).

3) Corresponds to "short-circuit breaking capacity" according to UL.

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## General data

3RV20 motor starter protectors (up to 100 A) as "Self-Protected Combination Motor Controllers (Type E)"

UL 508/UL 60947-4-1 approval demands 1-inch clearance and 2-inch creepage distance at line side for "Self-Protected Combination Motor Controllers".

Therefore, 3RV20 motor starter protectors of sizes S00 to S3 are approved according to UL 508/UL 60947-4-1 in combination with the terminal blocks listed below.

CSA does not require these extended clearance and creepage distances. According to CSA, these terminal blocks can be omitted when the device is used as a "Self-Protected Combination Motor Controller".

The 3RV20 motor starter protectors are approved as "Self-Protected Combination Motor Controllers" under the following file numbers:

- UL File No. E156943, CCN: NKJH
- CSA Master Contract 165071, Product Class: 3211 08

| **Motor starter protectors/ circuit breakers** | | **hp rating[1] for FLA[2] max.** | | **Rated current $I_n$** | **Up to 240 V AC** | | **Up to 480 Y/277 V AC** | | **Up to 600 Y/347 V AC** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | UL | CSA | UL | CSA | UL | CSA |
| | | | | | $I_{bc}$[3] | $I_{bc}$[3] | $I_{bc}$[3] | $I_{bc}$[3] | $I_{bc}$[3] | $I_{bc}$[3] |
| Type | V | 1-phase | 3-phase | A | kA | kA | kA | kA | kA | kA |
| **Size S00** | | | | | | | | | | |
| **3RV2011 + 3RV2928-1H[4][5]** | | | | 0.16 ... 12.5 | 65 | 65 | 65 | 65 | 30 | 30 |
| | | | | 16 | 65 | 65 | 65 | 65 | -- | -- |
| FLA[2] max. | 115/120 | 1 | 2 | | | | | | | |
| 16 A, 480 V; | 200/208 | 2 | 3 | | | | | | | |
| 12.5 A, 600 V | 230/240 | 2 | 5 | | | | | | | |
| | 460/480 | -- | 10 | | | | | | | |
| | 575/600 | -- | 10 | | | | | | | |
| **Size S0** | | | | | | | | | | |
| **3RV2021 + 3RV2928-1H[4][5]** | | | | 0.16 ... 12.5 | 65 | 65 | 65 | 65 | 30 | 30 |
| | | | | 16 ... 25 | 65 | 65 | 65 | 65 | -- | -- |
| FLA[2] max. | 115/120 | 2 | 5 | 28; 32 | 50 | 50 | 50 | 50 | -- | -- |
| 32 A, 480 V | 200/208 | 3 | 10 | | | | | | | |
| 12.5 A, 600 V | 230/240 | 5 | 10 | | | | | | | |
| | 460/480 | -- | 20 | | | | | | | |
| | 575/600 | -- | -- | | | | | | | |
| **Size S2** | | | | | | | | | | |
| **3RV2031+ 3RV2938-1K[4]** | | | | 14 ... 36 | 65 | 65 | 65 | 65 | 25 | 25 |
| | | | | 40 ... 52 | 65 | 65 | 65 | 65 | 22 | 22 |
| FLA[2] max. | 115/120 | 7 1/2 | 10 | 59 ... 73 | 65 | 65 | 20 | 20 | -- | -- |
| 73 A, 480 V | 200/208 | 15 | 25 | | | | | | | |
| 52 A, 600 V | 230/240 | 15 | 30 | | | | | | | |
| | 460/480 | -- | 60 | | | | | | | |
| | 575/600 | -- | 75 | | | | | | | |
| **Size S2, with increased switching capacity** | | | | | | | | | | |
| **3RV2032 + 3RV2938-1K[4]** | | | | 14 ... 36 | 100 | 100 | 100 | 100 | 25 | 25 |
| | | | | 40 ... 52 | 100 | 100 | 100 | 100 | 22 | 22 |
| FLA[2] max. | 115/120 | 7 1/2 | 10 | 59 ... 73 | 100 | 100 | 30 | 30 | -- | -- |
| 73 A, 480 V | 200/208 | 15 | 25 | | | | | | | |
| 52 A, 600 V | 230/240 | 15 | 30 | | | | | | | |
| | 460/480 | -- | 60 | | | | | | | |
| | 575/600 | -- | 75 | | | | | | | |
| **Size S3** | | | | | | | | | | |
| **3RV2041/3RV2042 + 3RT2946-4GA07[4]** | | | | 40 ... 75 | 65 | 65 | 65 | 65 | 30 | 30 |
| | | | | 84 ... 100 | 65 | 65 | 65 | 65 | -- | -- |
| FLA[2] max. | 115/120 | 7 1/2 | 15 | | | | | | | |
| 100 A, 480 V | 200/208 | 15 | 30 | | | | | | | |
| 75 A, 600 V | 230/240 | 20 | 40 | | | | | | | |
| | 460/480 | -- | 75 | | | | | | | |
| | 575/600 | -- | 75 | | | | | | | |

-- No approval

1) hp rating = Power rating in horse power (maximum motor rating).

2) FLA = Full Load Amps (motor full load current).

3) Corresponds to "short-circuit breaking capacity" according to UL/CSA.

4) Not required for CSA.

5) Alternatively 3RV2928-1K phase barrier can be used.

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3RV27 and 3RV28 motor starter protectors as "circuit breakers"

These motor starter protectors are approved as circuit breakers according to UL 489 and CSA 22.2 No. 5. They can be used therefore as upstream short-circuit protective devices for "Manual Motor Controllers" and "Manual Motor Controllers Suitable for Tap Conductor Protection in Group Installations".

3RV27 and 3RV28 motor starter protectors are approved as "circuit breakers" under the following file numbers:

- UL File No. E235044, CCN: DIVQ
- CSA Master Contract 165071, Product Class: 1432 01

| **Motor starter protectors/ circuit breakers** | **Rated current $I_n$** | **240 V AC** | | **480 Y/277 V AC** | | **480 V AC** | | **600 Y/347 V AC** | | **600 V AC** | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | UL | CSA | UL | CSA | UL | CSA | UL | CSA | UL | CSA |
| | | $I_{bc}$ [1] | $I_{bc}$ [1] | $I_{bc}$ [1] | $I_{bc}$ [1] | $I_{bc}$ [1] | $I_{bc}$ [1] | $I_{bc}$ [1] | $I_{bc}$ [1] | $I_{bc}$ [1] | $I_{bc}$ [1] |
| Type | A | kA | kA | kA | kA | kA | kA | kA | kA | kA | kA |
| **Size S00** | | | | | | | | | | | |
| **3RV2711** | 0.16 ... 12.5 | 65 | 65 | 65 | 65 | -- | -- | 10 | 10 | -- | -- |
| | 15 | 65 | 65 | 65 | 65 | -- | -- | -- | -- | -- | -- |
| **3RV2811** | 0.16 ... 12.5 | 65 | 65 | 65 | 65 | -- | -- | 10 | 10 | -- | -- |
| | 15 | 65 | 65 | 65 | 65 | -- | -- | -- | -- | -- | -- |
| **Size S0** | | | | | | | | | | | |
| **3RV2721** | 20; 22 | 50 | 50 | 50 | 50 | -- | -- | -- | -- | -- | -- |
| **3RV2821** | 20; 22 | 50 | 50 | 50 | 50 | -- | -- | -- | -- | -- | -- |
| **Size S3** | | | | | | | | | | | |
| **3RV2742** | 10; 15 | 65 | 65 | 65 | 65 | 65 | 65 | 20 | 20 | 20 | 20 |
| | 20 ... 30 | 65 | 65 | 65 | 65 | 65 | 65 | 20 | 20 | -- | -- |
| | 35 ... 60 | 65 | 65 | 65 | 65 | -- | -- | 20 | 20 | -- | -- |
| | 70 | 65 | 65 | 65 | 65 | -- | -- | 10 | 10 | -- | -- |

-- No approval

[1] Corresponds to "short-circuit breaking capacity" according to UL.

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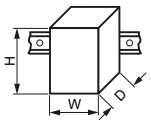
## General data

### General data

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Type** |  | | **3RV2.1.** | **3RV2.2.** | **3RV2.3.** | **3RV2.4.** | **3RV27, 3RV28** |
| Size | | | S00 | S0 | S2 | S3 | S00, S0 |
| Dimensions (W x H x D) | | | | | | | |
| • Screw terminals | | mm | 45 x 97 x 92 | 45 x 97 x 92 | 55 x 140 x 149 | 70 x 165 x 169 | 45 x 144 x 92 |
| • Spring-loaded terminals | | mm | 45 x 106 x 92 | 45 x 119 x 92 | -- | -- | -- |
| **Standards** | | | | | | | |
| • IEC 60947-1 (VDE 0660 Part 100) | | | Yes | | | | |
| • IEC 60947-2 (VDE 0660 Part 101) | | | Yes | | | | |
| • IEC 60947-4-1 (VDE 0660 Part 102) | | | Yes | | | | |
| • UL 508/UL 60947-4-1, CSA C22.2 No. 14/CSA C22.2 No. 60947-4-1 | | | Yes (not for 3RV2...-.....-0BA0 and -0DA0 motor starter protectors) | | | | -- |
| • UL 489, CSA C22.2 No. 5 | | | -- | | | | Yes |
| **Number of poles** | | | 3 | | | | |
| **Max. rated current $I_{n\ max}$ (= max. rated operational current $I_e$)** | | A | 16 | 40 | 80 | 100 | 22 |
| **Permissible ambient temperature** | | | | | | | |
| • Storage/transport | | °C | -50 ... +80 | | | | |
| • Operation | $I_n$: 0.16 ... 32 A | °C | -20 (-50)[1] ... +70 (current reduction above +60 °C) | | -- | | |
| | $I_n$: 36 ... 40 A | °C | -- | -20 ... +40 (the devices must not be mounted side-by-side and they must not be assembled with link modules with contactors. A lateral clearance of 9 mm is required.) | -- | | |
| | $I_n$: 14 ... 80 A | °C | -- | | -20 (-50)[1] ... +70 (current reduction above +60 °C) | -- | |
| | $I_n$: 40 ... 100 A | °C | -- | | | -20 ... +70 (current reduction above +60 °C) | -- |
| **Permissible rated current at inside temperature of control cabinet** | | | | | | | |
| • +60 °C | | % | 100 | | | | |
| • +70 °C | | % | 87 | | | | |
| **Permissible rated current at ambient temperature of enclosure (applies to motor starter protector/circuit breaker inside enclosure: S00/S0 ≤ 32 A, S2 ≤ 52 A)** | | | | | | | |
| • +35 °C | | % | 100 | | | -- | |
| • +60 °C | | % | -- | | | | |
| **Rated operational voltage $U_e$** | | | | | | | |
| • According to IEC | | V AC | 690 (when a molded-plastic enclosure is used only 500 V) | | | | |
| • According to UL/CSA | | V AC | 600 | | | | |
| **Rated frequency** | | Hz | 50/60 | | | | |
| **Rated insulation voltage $U_i$** | | V | 690 | | | 1 000 | 690 |
| **Rated impulse withstand voltage $U_{imp}$** | | kV | 6 | | | 8 | 6 |
| **Utilization category** | | | | | | | |
| • IEC 60947-2 (motor starter protector/circuit breaker) | | | A | | | | |
| • IEC 60947-4-1 (motor starter) | | | AC-3 and AC-3e | | | | |
| **Trip class CLASS** | According to IEC 60947-4-1 | | 10 | | 10/20 | | -- |
| **Power loss $P_v$ per motor starter protector** dependent upon rated current $I_n$ (upper setting range) $R_{\text{per conducting path}} = \frac{P}{I^2 \times 3}$ | $I_n$: 0.16 ... 0.63 A | W | 5.5 | | -- | | 5.5 |
| | $I_n$: 0.8 ... 6.3 A | W | 7.3 | | -- | | 7.3 |
| | $I_n$: 8 ... 16 A | W | 9.3 | | -- | | 9.3 |
| | $I_n$: 14 ... 16 A | W | -- | 9.3 | 12.5 | -- | 9.3 |
| | $I_n$: 17 ... 25 A | W | -- | 10.5 | 14.5 | -- | 10.5 |
| | $I_n$: 28 ... 32 A | W | -- | 13.3 | 18 | -- | |
| | $I_n$: 36 ... 40 A | W | -- | 16.3 | 20 | -- | |
| | $I_n$: 45 ... 52 A | W | -- | | 24.5 | -- | |
| | $I_n$: 59 ... 65 A | W | -- | | 26 | -- | |
| | $I_n$: 73 ... 80 A | W | -- | | 29.5 | -- | |
| | $I_n$: 40 ... 50 A | W | -- | | | 27 | -- |
| | $I_n$: 63 ... 75 A | W | -- | | | 38 | -- |
| | $I_n$: 84 ... 93 A | W | -- | | | 39 | -- |
| | $I_n$: 100 A | W | -- | | | 44 | -- |
| **Shock resistance** | According to IEC 60068-2-27 | *g*/ms | 25/11 (square and sine pulse) | | | | |

[1] Value in brackets applies to the 3RV2...-.....-0BA0 motor starter protectors.

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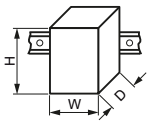
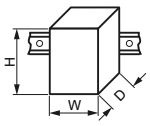
## General data (continued)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Type** |  | | **3RV2.1.** | **3RV2.2.** | **3RV2.3.** | **3RV2.4.** | **3RV27, 3RV28** |
| Size | | | S00 | S0 | S2 | S3 | S00, S0 |
| Dimensions (W x H x D) | | | | | | | |
| • Screw terminals | | mm | 45 x 97 x 92 | 45 x 97 x 92 | 55 x 140 x 149 | 70 x 165 x 169 | 45 x 144 x 92 |
| • Spring-loaded terminals | | mm | 45 x 106 x 92 | 45 x 119 x 92 | -- | -- | -- |
| **Degree of protection IP on the front** | according to IEC 60529 | | IP20 (screw terminals and spring-loaded terminals) | | | | |
| **Touch protection on the front** | according to IEC 60529 | | Finger-safe for vertical touching from the front (screw and spring-loaded terminals) | | | | |
| **Temperature compensation** | According to IEC 60947-4-1 | °C | -20 ... +60 | | | | |
| **Phase failure sensitivity** | According to IEC 60947-4-1 | | Yes (not for 3RV23, 3RV2...-.....-0DA0 motor starter protectors) | | | | No |
| **Protection of motors in hazardous environments** | | | Yes (only for 3RV20 motor starter protectors, not for 3RV20..-.....-0BA0 and -0DA0) | | | | No |
| • EC type-examination certificate number according to European Directive 2014/34/EU (ATEX) | | | DMT 02 ATEX F 001 Ex II (2) GD | | | | No |
| • According to international standard IECEx | | | IECEx BVS14.0102 [Ex] | | | | No |
| **Isolating function** | According to IEC 60947-2 | | Yes | | | | |
| **Main and EMERGENCY STOP switch characteristics** (with corresponding accessories) | According to IEC 60204-1 (VDE 0113) | | Yes | | | | |
| **Protective separation between main and auxiliary circuits required for PELV applications** | According to IEC 60947-1 | | | | | | |
| • Up to 400 V + 10% | | | Yes | | | | |
| • Up to 415 V + 5% (higher voltages on request) | | | Yes | | | | |
| • Up to 690 V (depends on mounted accessories) | | | Yes, see certificate | | | | |
| **Permissible mounting position** | | | Any, according to IEC 60447 start command "I" right-hand side or top | | | | |
| **Mechanical endurance (operating cycles)** | | | | | | | |
| • 3RV2 | | | 100 000 | | Up to 52 A: 50 000, up to 80 A: 20 000 | 25 000 | 100 000 |
| • 3RV2...-.....-0BA0 | | | 500 | | 250 | -- | |
| **Electrical endurance (operating cycles)** | | | | | | | |
| • 3RV2 | | | 100 000 | | Up to 52 A: 50 000, up to 80 A: 20 000 | 25 000 | 100 000 |
| • 3RV2...-.....-0BA0 | | | 500 | | 250 | -- | |
| **Max. switching frequency per hour (motor starts)** | | 1/h | 15 | | | | |

## General data

| | | | | | |
|---|---|---|---|---|---|
| **Type** |  | | **3RV2742** | **3RV1611-0BD10**[1] | **3RV1011** |
| Size | | | S3 | S00 | S00 |
| Dimensions (W x H x D) | | mm | 70 x 168 x 169 | 45 x 90 x 70 | 45 x 90 x 70 |
| **Standards** | | | | | |
| • IEC 60947-1 (VDE 0660 Part 100) | | | Yes | | |
| • IEC 60947-2 (VDE 0660 Part 101) | | | Yes | | |
| • UL 508/UL 60947-4-1, CSA C22.2 No.14/CSA 60947-4-1 | | | No | Yes | |
| • UL 489, CSA C22.2 No. 5 | | | Yes | No | |
| **Number of poles** | | | 3 | | |
| **Max. rated current $I_{n\ max}$ (= max. rated operational current $I_e$)** | | A | 70 | 0.2 | 12 |
| **Permissible ambient temperature** | | | | | |
| • Storage/transport | | °C | -50 ... +80 | | |
| • Operation | | °C | -20 ... +70 (current reduction above +60 °C) | | |
| **Permissible rated current at inside temperature of control cabinet** | | | | | |
| • +60 °C | | % | 100 | | |
| • +70 °C | | % | 87 | | |
| **Permissible rated current at ambient temperature of enclosure (applies to motor starter protector/ circuit breaker inside enclosure)** | | | | | |
| • +35 °C | | % | -- | | 100 |
| • +60 °C | | % | -- | | |
| **Rated operational voltage $U_e$** | | | | | |
| • According to IEC | | V AC | 690 (with molded-plastic enclosure 500 V) | | |
| • According to UL/CSA | | V AC | 600 | | |
| **Rated frequency** | | Hz | 50/60 | | |
| **Rated insulation voltage $U_i$** | | V | 1 000 | 690 | |
| **Rated impulse withstand voltage $U_{imp}$** | | kV | 8 | 6 | |
| **Utilization category** | | | | | |
| • IEC 60947-2 (motor starter protector/circuit breaker) | | | A | | |
| • IEC 60947-4-1 (motor starter) | | | AC-3 | AC-3 and AC-3e | |

[1] "Technical specifications" for 3RV1611 voltage transformer circuit breakers, see page 7/24.

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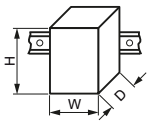
## General data

### General data (continued)

| | | | | | |
|---|---|---|---|---|---|
| **Type** |  | | **3RV2742** | **3RV1611-0BD10**[1] | **3RV1011** |
| Size | | | S3 | S00 | S00 |
| Dimensions (W x H x D) | | mm | 70 x 168 x 169 | 45 x 90 x 70 | 45 x 90 x 70 |
| **Power loss $P_v$ per motor starter protector** dependent upon rated current $I_n$ (upper setting range) | $I_n$: 0.2 A | W | -- | 5 | -- |
| | $I_n$: 10 A | W | 10 | -- | |
| | $I_n$: 15 ... 35 A | W | 14 | -- | |
| | $I_n$: 40 ... 70 A | W | 23.5 | -- | |
| $R_{\text{per conducting path}} = \frac{P}{I^2 \times 3}$ | $I_n$: ... 1.25 A | W | -- | | 5.5 |
| | $I_n$: 1.65 ... 6.3 A | W | -- | | 7.3 |
| | $I_n$: 8 ... 12 A | W | -- | | 9.3 |
| **Shock resistance** | According to IEC 60068-2-27 | *g*/ms | 25/11 (square and sine pulse) | | |
| **Degree of protection IP on the front** | according to IEC 60529 | | IP20 | | |
| **Touch protection on the front** | according to IEC 60529 | | Finger-safe for vertical touching from the front | | |
| **Temperature compensation** | According to IEC 60947-4-1 | °C | -20 ... +60 | | |
| **Phase failure sensitivity** | According to IEC 60947-4-1 | | No | Yes | |
| **Explosion protection – Safe operation of motors with "increased safety" type of protection** EC type-examination certificate number according to Directive 2014/34/EU (ATEX) | | | No | | Yes |
| **Isolating function** | According to IEC 60947-2 | | Yes | | |
| **Main and EMERGENCY STOP switch characteristics** (with corresponding accessories) | According to IEC 60204-1 (VDE 0113) | | Yes | | |
| **Protective separation between main and auxiliary circuits, required for PELV applications** | According to IEC 60947-1 | | | | |
| • Up to 400 V + 10% | | | Yes | | |
| • Up to 415 V + 5% (higher voltages on request) | | | Yes | | |
| **Permissible mounting position** | | | Any, according to IEC 60447 start command "I" right-hand side or top | | |
| **Mechanical endurance** | | Operating cycles | 25 000 | 100 000 | |
| **Electrical endurance** | | Operating cycles | 25 000 | 100 000 | |
| **Max. switching frequency per hour (motor starts)** | | 1/h | 15 | | |

1) "Technical specifications" for 3RV1611 voltage transformer circuit breakers, see page 7/24.

### Rated data of the auxiliary switches and signaling switches

| | | **Lateral auxiliary switch with 1 NO + 1 NC, 2 NO, 2 NC, 2 NO + 2 NC** | **Signaling switch** | **Transverse auxiliary switch with** | |
|---|---|---|---|---|---|
| | | | | **1 CO** | **1 NO + 1 NC, 2 NO** |
| **Max. rated voltage** | | | | | |
| • According to NEMA (UL) | V AC | 600 | | 250 | |
| • According to NEMA (CSA) | V AC | 600 | | 250 | |
| **Uninterrupted current** | A | 10 | | 5 | 2.5 |
| **Switching capacity** | | 1 NO + 1 NC, 2 NO, 2 NC: A600, Q300; 2 NO + 2 NC: A300, Q300 | A600, Q300 | B600, R300 | C300, R300 |

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## Front transverse auxiliary switches

| | | | Switching capacity for different voltages | |
|---|---|---|---|---|
| | | | **1 CO** | **1 NO + 1 NC, 2 NO** |
| **Rated operational current $I_e$** | | | | |
| • At AC-15, alternating voltage | | | | |
| - 24 V | | A | 4 | 2 |
| - 230 V | | A | 3 | 0.5 |
| • At AC-12 = $I_{th}$, alternating voltage | | | | |
| - 24 V | | A | 10 | 2.5 |
| - 230 V | | A | 10 | 2.5 |
| • At DC-13, direct voltage *L/R* 200 ms | | | | |
| - 24 V | | A | 1 | 1 |
| - 48 V | | A | -- | 0.3 |
| - 60 V | | A | -- | 0.15 |
| - 110 V | | A | 0.22 | -- |
| - 220 V | | A | 0.1 | -- |
| **Minimum load capacity** | | V | 17 | |
| | | mA | 1 | |

## Front transverse solid-state compatible auxiliary switches

| | | | Switching capacity for different voltages |
|---|---|---|---|
| | | | **1 CO** |
| **Rated operational voltage $U_e$** | Alternating voltage | V | 125 |
| **Rated operational current $I_e$/AC-14** | at $U_e$ = 125 V | A | 0.1 |
| **Rated operational voltage $U_e$** | Direct voltage *L/R* 200 ms | V | 60 |
| **Rated operational current $I_e$/DC-13** | at $U_e$ = 60 V | A | 0.3 |
| **Minimum load capacity** | | V | 5 |
| | | mA | 1 |

## Lateral auxiliary switches with signaling switch

| | | | Switching capacity for different voltages: Lateral auxiliary switch with 1 NO + 1 NC, 2 NO, 2 NC, 2 NO + 2 NC, Signaling switch |
|---|---|---|---|
| **Rated operational current $I_e$** | | | |
| • At AC-15, alternating voltage | | | |
| - 24 V | | A | 6 |
| - 230 V | | A | 4 |
| - 400 V | | A | 3 |
| - 690 V | | A | 1 |
| • At AC-12 = $I_{th}$, alternating voltage | | | |
| - 24 V | | A | 10 |
| - 230 V | | A | 10 |
| - 400 V | | A | 10 |
| - 690 V | | A | 10 |
| • At DC-13, direct voltage *L/R* 200 ms | | | |
| - 24 V | | A | 2 |
| - 110 V | | A | 0.5 |
| - 220 V | | A | 0.25 |
| - 440 V | | A | 0.1 |
| **Minimum load capacity** | | V | 17 |
| | | mA | 1 |

## Auxiliary releases

| | | Undervoltage releases | Shunt releases |
|---|---|---|---|
| **Power consumption** | | | |
| • During pick-up | | | |
| - AC voltages | VA/W | 20.2/13 | |
| - DC voltages | W | 20 | 13 ... 80 |
| • During uninterrupted duty | | | |
| - AC voltages | VA/W | 7.2/2.4 | -- |
| - DC voltages | W | 2.1 | -- |
| **Response voltage** | | | |
| • Tripping | V | 0.35 ... 0.7 x $U_s$ | 0.7 ... 1.1 x $U_s$ |
| • Pick-up | V | 0.85 ... 1.1 x $U_s$ | -- |
| **Opening time maximum** | ms | 20 | |

## Short-circuit protection for auxiliary and control circuits

| | | |
|---|---|---|
| **Melting fuses** operational class gG | A | 10 |
| **Miniature circuit breakers** C characteristic | A | 6 (prospective short-circuit current < 0.4 kA) |

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## General data

### Conductor cross-sections of main circuit

| **Type** | | **3RV2.11** | **3RV2.21** | **3RV2.31-4B.1., 3RV2.31-4D.1., 3RV2.31-4E.1., 3RV2.31-4P.1., 3RV2.31-4S.1., 3RV2.31-4T.1., 3RV2.31-4U.1., 3RV2.31-4V.1.** | **3RV2.31-4J.1., 3RV2.31-4K.1., 3RV2.31-4R.1., 3RV2.31-4W.1., 3RV2.31-4X.1., 3RV2431-4VA1., 3RV2.32** | **3RV27.1, 3RV28.1** |
|---|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | | S00, S0 |
| **Connection type** | | **Screw terminals** | | | | |
| **Terminal screw** | | M3, Pozidriv size 2 | M4, Pozidriv size 2 | M6, Pozidriv size 2 | | M4, Pozidriv size 2 |
| **Operating devices** | mm | ⌀ 5 ... 6 | ⌀ 5 ... 6 | ⌀ 5 ... 6 | | ⌀ 5 ... 6 |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 | 2 ... 2.5 | 3.0 ... 4.5 | | 2.5 ... 3 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.75 ... 2.5)[1], 2 x 4 | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 10)[1] | 2 x (1 ... 25)[1], 1 x (1 ... 35)[1] | 2 x (1 ... 35)[1], 1 x (1 ... 50)[1] | 2 x (1 ... 10)[1], max. 1 x 25 |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 6)[1], 1 x 10 | 2 x (1 ... 16)[1], 1 x (1 ... 25)[1] | 2 x (1 ... 25)[1], 1 x (1 ... 35)[1] | 1 x (1 ... 16), max. 6 + 16 |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1], 2 x (18 ... 12)[1] | 2 x (16 ... 12)[1], 2 x (14 ... 8)[1] | 2 x (18 ... 3)[1], 1 x (18 ... 2)[1] | 2 x (18 ... 2)[1], 1 x (18 ... 1)[1] | 2 x (14 ... 10) |
| **Connection type** | | **Spring-loaded terminals** | | | | |
| **Operating devices** | mm | 3.0 x 0.5 | | | | |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 4) | 2 x (1 ... 10) | -- | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) | 2 x (1 ... 6) | -- | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 2.5) | 2 x (1 ... 6) | -- | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 12) | 2 x (18 ... 8) | -- | | |
| Max. external diameter of the conductor insulation | mm | 3.6 | 6.4 | -- | | |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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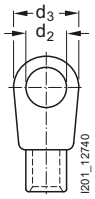
## Conductor cross-sections of main circuit (continued)

| Type | | 3RV2.4./ 3RV2742 | 3RV1611-0BD10[1]/ 3RV1011 |
|---|---|---|---|
| Size | | S3 | S00 |
| **Connection type** | | **Screw terminals with box terminal** | **Screw terminals** |
| **Terminal screw** | | M6 | Pozidriv size 2 |
| **Prescribed tightening torque** | Nm | 4.5 ... 6 | 0.8 .... 1.2 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | |
| • Solid or stranded | $mm^2$ | 2 x (2.5 ... 16)[2], 2 x (10 ... 50)[2], 1 x (10 ... 70)[2] | 2 x (0.5 ... 1.5)[2], 2 x (0.75 ... 2.5)[2] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (2.5 ... 35)[2], 1 x (2.5 ... 50)[2] | 2 x (0.5 ... 1.5)[2], 2 x (0.75 ... 2.5)[2] |
| • AWG cables, solid or stranded | AWG | 2 x (10 ... 1/0)[2], 1 x (10 ... 2/0)[2] | 2 x (18 ... 14) |
| **Ribbon cable conductors** (number x width x thickness) | mm | 2 x (6 x 9 x 0.8) | -- |
| **Removable box terminals**[3] | | | |
| • With copper bars[4] | mm | 2 x 12 x 4 | -- |
| • With cable lugs[5] | | | |
| - Terminal screw | | M6 | |
| - Prescribed tightening torque | Nm | 4.5 ... 6 | |
| - Usable ring cable lugs | mm<br>mm | $d_2$ = min. 6.3<br>$d_3$ = max. 19 | |




1) "Technical specifications" for 3RV16 voltage transformer circuit breakers, see page 7/24.
2) If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.
3) Cable lug and busbar connection possible after removing the box terminals. This does not apply for 3RV2742.
4) If bars larger than 12 mm x 10 mm are connected, a 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/59.
5) If conductors larger than 25 $mm^2$ are connected, the 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/59.

## Conductor cross-sections for auxiliary and control circuits[1]

| Type | | 3RV2.11 | 3RV1011/ 3RV1611-0BD10[2] | 3RV2.21 | 3RV2.3 | 3RV2.4 | 3RV27, 3RV28 |
|---|---|---|---|---|---|---|---|
| Size | | S00 | | S0 | S2 | S3 | S00, S0, S3 |
| **Connection type** | | **Screw terminals** | | | | | |
| **Terminal screw** | | M3, Pozidriv size 2 | | | | | |
| **Operating devices** | mm | ⌀ 5 ... 6 | | | | | |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 | | | | | |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[3], 2 x (0.75 ... 2.5)[3] | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[3], 2 x (0.75 ... 2.5)[3] | | | | | |
| • AWG cables, solid or stranded | AWG | 2 x (18 ... 14)[3], 2 x (20 ... 16)[3] | | | | | |
| **Connection type** | | **Spring-loaded terminals** | | | | | |
| **Operating devices** | mm | 3.0 x 0.5 | | | | | |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 2.5) | | | | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) | | | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5) | | | | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) | | | | | |
| Max. external diameter of the conductor insulation | mm | 3.6 | | | | | |

1) The conductor cross-sections also apply to the 3RV2901-1. auxiliary switch, 3RV2921-1M signaling switch and 3RV29.2-1.... auxiliary release.
2) "Technical specifications" for 3RV16 voltage transformer circuit breakers, see page 7/24.
3) If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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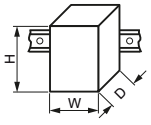
## General data

### *Voltage transformer circuit breakers*

| General data | | | | | |
|---|---|---|---|---|---|
| **Type** |  | | **3RV1611-1AG14** | **3RV1611-1CG14** | **3RV1611-1DG14** |
| Size | | | S00 | S00 | S00 |
| Dimensions (W x H x D) | | mm | 45 x 90 x 70 | 45 x 90 x 70 | 45 x 90 x 70 |
| **Rated current $I_n$** | | A | 1.4 | 2.5 | 3 |
| **Ambient temperature** | | | | | |
| • During storage/transport | | °C | -50 ... +80 | | |
| • During operation | | °C | -20 ... +60 (up to +70 °C possible with current reduction) | | |
| **Rated operational voltage $U_e$** | | V | 400 | | |
| **Rated frequency** | | Hz | 16.66 ... 60 | | |
| **Rated insulation voltage $U_i$** | | V | 690 | | |
| **Short-circuit breaking capacity $I_{cu}$ at 400 V AC** | | kA | 50 | | |
| **Set value of the thermal overload release** | | A | 1.4 | 2.5 | 3 |
| **Response value of the instantaneous electronic release** | | A | 6 ±20% | 10.5 ±20% | 20 ±20% |
| **Tripping time of the instantaneous electronic release** | | ms | Approx. 6 at 12 A | Approx. 6 at 20 A | Approx. 6 at 40 A |
| **Internal resistance** | | | | | |
| • In cold state | | Ω | > 0.25 ±6.5% | | |
| • In heated state | | Ω | > 0.30 ±6.5% | | |
| **Shock resistance** according to IEC 60068-2-27 | | *g*/ms | 15 | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | | |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | | |
| **Endurance** | | | | | |
| • Mechanical | | Operating cycles | 10 000 | | |
| • Electrical | | Operating cycles | 10 000 | | |
| **Permissible mounting position** | | | Any | | |

| **Type** | | | **3RV1611-1AG14** | **3RV1611-1CG14** | **3RV1611-1DG14** |
|---|---|---|---|---|---|
| **Conductor cross-sections, main circuit, 1 or 2 conductors** | | | | | |
| **Connection type** | | | **Screw terminals** | | |
| **Terminal screw** | | | Pozidriv size 2 | | |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | |
| • Solid or stranded | | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1], 2 x (1 ... 4) | | |
| • Finely stranded with end sleeve (DIN 46228) | | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] | | |
| **Auxiliary switches for blocking the distance protection** | | | | | |
| **With defined lateral assignment for blocking distance protection** | | | 1 CO (for use as 1 NO or 1 NC) | | |
| **Rated operational voltage $U_e$** | Alternating voltage | V | 125 | | |
| **Rated operational current $I_e$/AC-14** | at $U_e$ = 125 V | A | 0.1 | | |
| **Rated operational voltage $U_e$** | Direct voltage *L/R* 200 ms | V | 60 | | |
| **Rated operational current $I_e$/DC-13** | at $U_e$ = 60 V | A | 0.3 | | |
| **Minimum load capacity** | | V<br>mA | 5<br>1 | | |
| **Short-circuit protection for auxiliary circuit** | | | | | |
| **Melting fuse** | | A | 250 V type FF 2A (prospective short-circuit current < 1.1 kA) | | |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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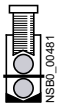
| **Terminals for "Self-Protected Combination Motor Controllers (Type E) according to UL 508/UL 60947-4-1"** | | |
|---|---|---|
| **Type** | | **3RV2928-1H** |
| **Prescribed tightening torque** | Nm | 2.5 ... 3 |
| **Conductor cross-sections** | | |
| • Front clamping point connected | | |
| - Solid | $mm^2$ | 1 ... 10 |
| - Finely stranded with end sleeve | $mm^2$ | 1 ... 16 |
| - Stranded | $mm^2$ | 2.5 … 25 |
| - AWG cables, solid or stranded | AWG | 14 ... 3 |
| - Terminal screw | | M4 |
| • Rear clamping point connected | | |
| - Solid | $mm^2$ | 1 ... 10 |
| - Finely stranded with end sleeve | $mm^2$ | 1 ... 16 |
| - Stranded | $mm^2$ | 1.5 ... 25 |
| - AWG cables, solid or stranded | AWG | 14 ... 6 |
| - Terminal screw | | M4 |
| • Both clamping points connected | | |
|  - Front clamping point: | | |
| Solid | $mm^2$ | 1 ... 10 |
| Finely stranded with end sleeve | $mm^2$ | 1 ... 10[1], 1 ... 6[1] |
| Stranded | $mm^2$ | 2.5 ... 10 |
| AWG cables, solid or stranded | AWG | 14 ... 6 |
| Terminal screw | | M4 |
| - Rear clamping point: | | |
| Solid | $mm^2$ | 1 ... 10 |
| Finely stranded with end sleeve | $mm^2$ | 1 ... 10[1], 1 ... 16[1] |
| Stranded | $mm^2$ | 2.5 ... 10 |
| AWG cables, solid or stranded | AWG | 16 ... 3 |
| Terminal screw | | M4 |



1) The following connections are possible when both clamping points are connected:
- front 1 to 10 $mm^2$ and rear 1 to 10 $mm^2$,
- front 1 to 6 $mm^2$ and rear 1 to 16 $mm^2$.

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## General data

| Connection module (plug and adapter) for motor starter protectors/circuit breakers with screw terminals | | | |
|---|---|---|---|
| **Type** | | **3RT1900-4RE01**<br>**Motor feeder connector S0** | **3RT1926-4RD01**<br>**Adapter S0** |
| **General data** | | | |
| **Rated insulation voltage $U_i$**<br>(pollution degree 3) | V | 690 | |
| **Rated impulse withstand voltage $U_{imp}$**<br>(pollution degree 3) | kV | 6 | |
| **Rated operational voltage $U_e$** | V | 440 | |
| **Rated frequency $f$**<br>For AC operation | Hz | 50/60 | |
| **Rated operational current $I_e$**<br>AC-3 and AC-3e at 400 V | A | 25 | |
| **Mechanical endurance** | Operating cycles | 10 million | |
| **Electrical endurance at $I_e$** | Operating cycles | 1 million | |
| **Protective separation according to IEC 60947-1**<br>(pollution degree 3) | V | 400 | |
| **Permissible ambient temperature** | | | |
| • During operation | °C | -25 ... +60 | |
| • During storage | °C | -50 ... +80 | |
| **Conductor cross-sections** | | | |
| **Connection type** | | **Screw terminals** | |
| • Solid | $mm^2$ | 1 x (0.5 ... 6) | |
| • Finely stranded without/with end sleeve | $mm^2$ | 1 x (0.5 ... 6) | |
| • Stranded | $mm^2$ | 1 x (0.5 ... 6) | |
| • AWG cables, solid or stranded | AWG | 1 x (20 ... 10) | |
| • Tightening torque | Nm | 0.6 ... 0.8 | |
| • Corresponding opening tool | | Cross-tip screwdriver PZ2 | |
| **SIQ and UL rated data** | | | |
| Rated operational voltage $U_e$ | V | 480 | |
| Rated insulation voltage $U_i$ | V | 600 | |
| Uninterrupted current, at 40 °C | A | 25 | |
| Short-circuit protection[1] | | | |
| • At 600 V | kA | 5 | |
| • CLASS RK5 fuse | A | 100 | |
| • Circuit breakers with overload protection according to UL 489 | A | 100 | |
| **Combination motor controllers type E according to UL 508** | | | |
| at 480 V | Type | 3RV202 | |
| | A | 22 | |
| | kA | 65 | |
| at 600 V | Type | 3RV202 | |
| | A | 22 | |
| | kA | 10 | |

[1] For more information about short-circuit values, e.g. for protection against high short-circuit currents, see the UL reports.

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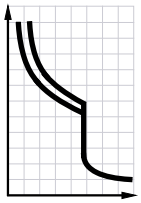
## Selection and ordering data

### *CLASS 10, without auxiliary switches*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV2011-..A10,
3RV2011-..A10-0BA0

3RV2011-..A20,
3RV2011-.AA20-0BA0

| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | A | A | kA | | | | |
| **Size S00** | | | | | | | | |
| 0.16 | 0.04 | 0.11 ... 0.16 | 2.1 | 100 | **3RV2011-0AA10** | | **3RV2011-0AA20** | |
| 0.2 | 0.06 | 0.14 ... 0.2 | 2.6 | 100 | **3RV2011-0BA10** | | **3RV2011-0BA20** | |
| 0.25 | 0.06 | 0.18 ... 0.25 | 3.3 | 100 | **3RV2011-0CA10** | | **3RV2011-0CA20** | |
| 0.32 | 0.09 | 0.22 ... 0.32 | 4.2 | 100 | **3RV2011-0DA10** | | **3RV2011-0DA20** | |
| 0.4 | 0.09 | 0.28 ... 0.4 | 5.2 | 100 | **3RV2011-0EA10** | | **3RV2011-0EA20** | |
| 0.5 | 0.12 | 0.35 ... 0.5 | 6.5 | 100 | **3RV2011-0FA10** | | **3RV2011-0FA20** | |
| 0.63 | 0.18 | 0.45 ... 0.63 | 8.2 | 100 | **3RV2011-0GA10** | | **3RV2011-0GA20** | |
| 0.8 | 0.18 | 0.55 ... 0.8 | 10 | 100 | **3RV2011-0HA10** | | **3RV2011-0HA20** | |
| 1 | 0.25 | 0.7 ... 1 | 13 | 100 | **3RV2011-0JA10** | | **3RV2011-0JA20** | |
| 1.25 | 0.37 | 0.9 ... 1.25 | 16 | 100 | **3RV2011-0KA10** | | **3RV2011-0KA20** | |
| 1.6 | 0.55 | 1.1 ... 1.6 | 21 | 100 | **3RV2011-1AA10** | | **3RV2011-1AA20** | |
| 2 | 0.75 | 1.4 ... 2 | 26 | 100 | **3RV2011-1BA10** | | **3RV2011-1BA20** | |
| 2.5 | 0.75 | 1.8 ... 2.5 | 33 | 100 | **3RV2011-1CA10** | | **3RV2011-1CA20** | |
| 3.2 | 1.1 | 2.2 ... 3.2 | 42 | 100 | **3RV2011-1DA10** | | **3RV2011-1DA20** | |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | **3RV2011-1EA10** | | **3RV2011-1EA20** | |
| 5 | 1.5 | 3.5 ... 5 | 65 | 100 | **3RV2011-1FA10** | | **3RV2011-1FA20** | |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | **3RV2011-1GA10** | | **3RV2011-1GA20** | |
| 8 | 3 | 5.5 ... 8 | 104 | 100 | **3RV2011-1HA10** | | **3RV2011-1HA20** | |
| 10 | 4 | 7 ... 10 | 130 | 100 | **3RV2011-1JA10** | | **3RV2011-1JA20** | |
| 12.5 | 5.5 | 9 ... 12.5 | 163 | 100 | **3RV2011-1KA10** | | **3RV2011-1KA20** | |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | **3RV2011-4AA10** | | **3RV2011-4AA20** | |
| ***For special operating conditions down to -50 °C***[2][3] | | | | | | | | |
| 1.25 | 0.37 | 0.9 ... 1.25 | 16 | 100 | **3RV2011-0KA10-0BA0** | | **--** | |
| 1.6 | 0.55 | 1.1 ... 1.6 | 21 | 100 | **3RV2011-1AA10-0BA0** | | **3RV2011-1AA20-0BA0** | |
| 2.5 | 0.75 | 1.8 ... 2.5 | 33 | 100 | **3RV2011-1CA10-0BA0** | | **--** | |
| 3.2 | 1.1 | 2.2 ... 3.2 | 42 | 100 | **3RV2011-1DA10-0BA0** | | **--** | |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | **3RV2011-1EA10-0BA0** | | **--** | |
| 5 | 1.5 | 3.5 ... 5 | 65 | 100 | **3RV2011-1FA10-0BA0** | | **--** | |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | **3RV2011-1GA10-0BA0** | | **--** | |
| 8 | 3 | 5.5 ... 8 | 104 | 100 | **3RV2011-1HA10-0BA0** | | **--** | |
| 10 | 4 | 7 ... 10 | 130 | 100 | **3RV2011-1JA10-0BA0** | | **--** | |
| 12.5 | 5.5 | 9 ... 12.5 | 163 | 100 | **3RV2011-1KA10-0BA0** | | **--** | |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | **3RV2011-4AA10-0BA0** | | **3RV2011-4AA20-0BA0** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) The 3RV2011-.....-0BA0 motor starter protectors have a mechanical endurance of 500 operating cycles.

3) The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).

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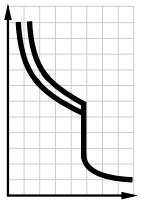
**For motor protection** ***IE3/IE4 ready*** **AC-3e**

***CLASS 10, without auxiliary switches***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV2021-..A10, 3RV2021-4.A10-0BA0

3RV2021-..A20, 3RV2021-..A20-0BA0

| Rated current | Suitable for three-phase motors[1] with ▶ | Setting range for thermal overload release | Instanta-neous electronic release | Short-circuit breaking capacity at 400 V AC | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | A | A | kA | | | | |
| **Size S0** | | | | | | | | |
| 0.16 | 0.04 | 0.11 ... 0.16 | 2.1 | 100 | **3RV2021-0AA10** | | -- | |
| 0.2 | 0.06 | 0.14 ... 0.2 | 2.6 | 100 | **3RV2021-0BA10** | | -- | |
| 0.25 | 0.06 | 0.18 ... 0.25 | 3.3 | 100 | **3RV2021-0CA10** | | -- | |
| 0.32 | 0.09 | 0.22 ... 0.32 | 4.2 | 100 | **3RV2021-0DA10** | | -- | |
| 0.4 | 0.09 | 0.28 ... 0.4 | 5.2 | 100 | **3RV2021-0EA10** | | -- | |
| 0.5 | 0.12 | 0.35 ... 0.5 | 6.5 | 100 | **3RV2021-0FA10** | | -- | |
| 0.63 | 0.18 | 0.45 ... 0.63 | 8.2 | 100 | **3RV2021-0GA10** | | **3RV2021-0GA20** | |
| 0.8 | 0.18 | 0.55 ... 0.8 | 10 | 100 | **3RV2021-0HA10** | | **3RV2021-0HA20** | |
| 1 | 0.25 | 0.7 ... 1 | 13 | 100 | **3RV2021-0JA10** | | **3RV2021-0JA20** | |
| 1.25 | 0.37 | 0.9 ... 1.25 | 16 | 100 | **3RV2021-0KA10** | | **3RV2021-0KA20** | |
| 1.6 | 0.55 | 1.1 ... 1.6 | 21 | 100 | **3RV2021-1AA10** | | **3RV2021-1AA20** | |
| 2 | 0.75 | 1.4 ... 2 | 26 | 100 | **3RV2021-1BA10** | | **3RV2021-1BA20** | |
| 2.5 | 0.75 | 1.8 ... 2.5 | 33 | 100 | **3RV2021-1CA10** | | **3RV2021-1CA20** | |
| 3.2 | 1.1 | 2.2 ... 3.2 | 42 | 100 | **3RV2021-1DA10** | | **3RV2021-1DA20** | |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | **3RV2021-1EA10** | | **3RV2021-1EA20** | |
| 5 | 1.5 | 3.5 ... 5 | 65 | 100 | **3RV2021-1FA10** | | **3RV2021-1FA20** | |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | **3RV2021-1GA10** | | **3RV2021-1GA20** | |
| 8 | 3 | 5.5 ... 8 | 104 | 100 | **3RV2021-1HA10** | | **3RV2021-1HA20** | |
| 10 | 4 | 7 ... 10 | 130 | 100 | **3RV2021-1JA10** | | **3RV2021-1JA20** | |
| 12.5 | 5.5 | 9 ... 12.5 | 163 | 100 | **3RV2021-1KA10** | | **3RV2021-1KA20** | |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | **3RV2021-4AA10** | | **3RV2021-4AA20** | |
| 20 | 7.5 | 13 ... 20 | 260 | 55 | **3RV2021-4BA10** | | **3RV2021-4BA20** | |
| 22 | 11 | 16 ... 22 | 286 | 55 | **3RV2021-4CA10** | | **3RV2021-4CA20** | |
| 25 | 11 | 18 ... 25 | 325 | 55 | **3RV2021-4DA10** | | **3RV2021-4DA20** | |
| 28 | 15 | 23 ... 28 | 364 | 55 | **3RV2021-4NA10** | | **3RV2021-4NA20** | |
| 32[2] | 15 | 27 ... 32 | 400 | 55 | **3RV2021-4EA10** | | **3RV2021-4EA20** | |
| 36[3] | 18.5 | 30 ... 36 | 432 | 20 | **3RV2021-4PA10** | | -- | |
| 40[3] | 18.5 | 34 ... 40 | 480 | 20 | **3RV2021-4FA10** | | -- | |
| ***For special operating conditions down to -50 °C[4][5]*** | | | | | | | | |
| 1 | 0.25 | 0.7 ... 1 | 13 | 100 | -- | | **3RV2021-0JA20-0BA0** | |
| 1.6 | 0.55 | 1.1 ... 1.6 | 21 | 100 | -- | | **3RV2021-1AA20-0BA0** | |
| 2 | 0.75 | 1.4 ... 2 | 26 | 100 | -- | | **3RV2021-1BA20-0BA0** | |
| 2.5 | 0.75 | 1.8 ... 2.5 | 33 | 100 | -- | | **3RV2021-1CA20-0BA0** | |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | -- | | **3RV2021-1EA20-0BA0** | |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | -- | | **3RV2021-1GA20-0BA0** | |
| 8 | 3 | 5.5 ... 8 | 104 | 100 | -- | | **3RV2021-1HA20-0BA0** | |
| 10 | 4 | 7 ... 10 | 130 | 100 | -- | | **3RV2021-1JA20-0BA0** | |
| 12.5 | 5.5 | 9 ... 12.5 | 163 | 100 | -- | | **3RV2021-1KA20-0BA0** | |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | -- | | **3RV2021-4AA20-0BA0** | |
| 20 | 7.5 | 13 ... 20 | 260 | 55 | **3RV2021-4BA10-0BA0** | | -- | |
| 22 | 11 | 16 ... 22 | 286 | 55 | **3RV2021-4CA10-0BA0** | | -- | |
| 25 | 11 | 18 ... 25 | 325 | 55 | **3RV2021-4DA10-0BA0** | | **3RV2021-4DA20-0BA0** | |
| 28 | 15 | 23 ... 28 | 364 | 55 | -- | | **3RV2021-4NA20-0BA0** | |
| 32[2] | 15 | 27 ... 32 | 400 | 55 | **3RV2021-4EA10-0BA0** | | **3RV2021-4EA20-0BA0** | |
| 40[3] | 18.5 | 34 ... 40 | 480 | 20 | **3RV2021-4FA10-0BA0** | | -- | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using 3RV2 motor starter protectors size S2.

3) The devices must not be mounted side-by-side and they must not be assembled with link modules with contactors. A lateral clearance of 9 mm is required. For use with IE3 and IE4 motors we recommend using 3RV2 motor starter protectors size S2.

4) The 3RV2021-.....-0BA0 motor starter protectors have a mechanical endurance of 500 operating cycles.

5) The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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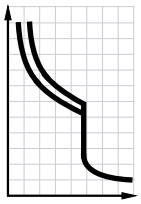
***CLASS 10, without auxiliary switches***



3RV2031-4.A10,
3RV2031-4.A10-0BA0

3RV2032-4.A10

| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | **Screw terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| $I_n$ | | ⊏ | $I >$ | $I_{cu}$ | Article No. Price per PU | | | |
| A | kW | A | A | kA | | | | |
| **Size S2** | | | | | | | | |
| 14 | 5.5 | 9.5 ... 14 | 208 | 65 | **3RV2031-4SA10** | 1 | 1 unit | 41E |
| 17 | 7.5 | 12 ... 17 | 260 | 65 | **3RV2031-4TA10** | 1 | 1 unit | 41E |
| 20 | 7.5 | 14 ... 20 | 260 | 65 | **3RV2031-4BA10** | 1 | 1 unit | 41E |
| 25 | 11 | 18 ... 25 | 325 | 65 | **3RV2031-4DA10** | 1 | 1 unit | 41E |
| 32 | 15 | 22 ... 32 | 416 | 65 | **3RV2031-4EA10** | 1 | 1 unit | 41E |
| 36 | 18.5 | 28 ... 36 | 520 | 65 | **3RV2031-4PA10** | 1 | 1 unit | 41E |
| 40 | 18.5 | 32 ... 40 | 585 | 65 | **3RV2031-4UA10** | 1 | 1 unit | 41E |
| 45 | 22 | 35 ... 45 | 650 | 65 | **3RV2031-4VA10** | 1 | 1 unit | 41E |
| 52 | 22 | 42 ... 52 | 741 | 65 | **3RV2031-4WA10** | 1 | 1 unit | 41E |
| 59 | 30 | 49 ... 59 | 845 | 65 | **3RV2031-4XA10** | 1 | 1 unit | 41E |
| 65 | 30 | 54 ... 65 | 845 | 65 | **3RV2031-4JA10** | 1 | 1 unit | 41E |
| 73 | 37 | 62 ... 73 | 949 | 65 | **3RV2031-4KA10** | 1 | 1 unit | 41E |
| 80[2] | 37 | 70 ... 80 | 1 040 | 65 | **3RV2031-4RA10** | 1 | 1 unit | 41E |
| ***For special operating conditions down to -50 °C[3][4]*** | | | | | | | | |
| 25 | 11 | 18 ... 25 | 325 | 65 | **3RV2031-4DA10-0BA0** | 1 | 1 unit | 41E |
| 32 | 15 | 22 ... 32 | 416 | 65 | **3RV2031-4EA10-0BA0** | 1 | 1 unit | 41E |
| 65 | 30 | 54 ... 65 | 845 | 65 | **3RV2031-4JA10-0BA0** | 1 | 1 unit | 41E |
| **Size S2, with increased switching capacity** | | | | | | | | |
| 14 | 5.5 | 9.5 ... 14 | 208 | 100 | **3RV2032-4SA10** | 1 | 1 unit | 41E |
| 17 | 7.5 | 12 ... 17 | 260 | 100 | **3RV2032-4TA10** | 1 | 1 unit | 41E |
| 20 | 7.5 | 14 ... 20 | 260 | 100 | **3RV2032-4BA10** | 1 | 1 unit | 41E |
| 25 | 11 | 18 ... 25 | 325 | 100 | **3RV2032-4DA10** | 1 | 1 unit | 41E |
| 32 | 15 | 22 ... 32 | 416 | 100 | **3RV2032-4EA10** | 1 | 1 unit | 41E |
| 36 | 18.5 | 28 ... 36 | 520 | 100 | **3RV2032-4PA10** | 1 | 1 unit | 41E |
| 40 | 18.5 | 32 ... 40 | 585 | 100 | **3RV2032-4UA10** | 1 | 1 unit | 41E |
| 45 | 22 | 35 ... 45 | 650 | 100 | **3RV2032-4VA10** | 1 | 1 unit | 41E |
| 52 | 22 | 42 ... 52 | 741 | 100 | **3RV2032-4WA10** | 1 | 1 unit | 41E |
| 59 | 30 | 49 ... 59 | 845 | 100 | **3RV2032-4XA10** | 1 | 1 unit | 41E |
| 65 | 30 | 54 ... 65 | 845 | 100 | **3RV2032-4JA10** | 1 | 1 unit | 41E |
| 73 | 37 | 62 ... 73 | 949 | 100 | **3RV2032-4KA10** | 1 | 1 unit | 41E |
| 80[2] | 37 | 70 ... 80 | 1 040 | 100 | **3RV2032-4RA10** | 1 | 1 unit | 41E |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Suitable for use with IE3 and IE4 motors up to a starting current of 720 A. For higher starting currents we recommend using 3RV2 motor starter protectors size S3.

3) The 3RV2031-.....-0BA0 motor starter protectors have a mechanical endurance of 250 operating cycles.

4) The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).

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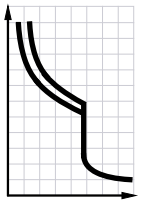
**For motor protection** ***IE3/IE4 ready*** **AC-3e**

***CLASS 10, without auxiliary switches***



3RV204.-4.A10

| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. Price per PU | | | |
| A | kW | A | A | kA | | | | |
| **Size S3** | | | | | | | | |
| 40 | 18.5 | 28 ... 40 | 520 | 65 | **3RV2041-4FA10** | 1 | 1 unit | 41E |
| 50 | 22 | 36 ... 50 | 650 | 65 | **3RV2041-4HA10** | 1 | 1 unit | 41E |
| 63 | 30 | 45 ... 63 | 819 | 65 | **3RV2041-4JA10** | 1 | 1 unit | 41E |
| 75 | 37 | 57 ... 75 | 975 | 65 | **3RV2041-4KA10** | 1 | 1 unit | 41E |
| 84 | 45 | 65 ... 84 | 1 170 | 65 | **3RV2041-4RA10** | 1 | 1 unit | 41E |
| 93 | 45 | 75 ... 93 | 1 300 | 65 | **3RV2041-4YA10** | 1 | 1 unit | 41E |
| 100[2] | 45, 55 | 80 ... 100 | 1 300 | 65 | **3RV2041-4MA10** | 1 | 1 unit | 41E |
| **Size S3, with increased switching capacity** | | | | | | | | |
| 40 | 18.5 | 28 ... 40 | 520 | 100 | **3RV2042-4FA10** | 1 | 1 unit | 41E |
| 50 | 22 | 36 ... 50 | 650 | 100 | **3RV2042-4HA10** | 1 | 1 unit | 41E |
| 63 | 30 | 45 ... 63 | 819 | 100 | **3RV2042-4JA10** | 1 | 1 unit | 41E |
| 75 | 37 | 57 ... 75 | 975 | 100 | **3RV2042-4KA10** | 1 | 1 unit | 41E |
| 84 | 45 | 65 ... 84 | 1 170 | 100 | **3RV2042-4RA10** | 1 | 1 unit | 41E |
| 93 | 45 | 75 ... 93 | 1 300 | 100 | **3RV2042-4YA10** | 1 | 1 unit | 41E |
| 100[2] | 45, 55 | 80 ... 100 | 1 300 | 100 | **3RV2042-4MA10** | 1 | 1 unit | 41E |

[1] Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

[2] Suitable for use with IE3 and IE4 motors up to a starting current of 780 A. For higher starting currents we recommend using 3VA circuit breakers (see Catalog LV 10).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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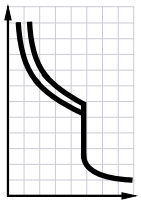
***CLASS 10, with transverse auxiliary switch (1 NO + 1 NC)***

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV2011-..A15

3RV2011-..A25, 3RV2011-1EA25-0BA0

3RV2.21-4.A15, 3RV2021-4.A15-0BA0

3RV2021-4.A25

| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | A | A | kA | | | | |
| **Size S00** | | | | | | | | |
| 0.16 | 0.04 | 0.11 ... 0.16 | 2.1 | 100 | **3RV2011-0AA15** | | **3RV2011-0AA25** | |
| 0.2 | 0.06 | 0.14 ... 0.2 | 2.6 | 100 | **3RV2011-0BA15** | | **3RV2011-0BA25** | |
| 0.25 | 0.06 | 0.18 ... 0.25 | 3.3 | 100 | **3RV2011-0CA15** | | **3RV2011-0CA25** | |
| 0.32 | 0.09 | 0.22 ... 0.32 | 4.2 | 100 | **3RV2011-0DA15** | | **3RV2011-0DA25** | |
| 0.4 | 0.09 | 0.28 ... 0.4 | 5.2 | 100 | **3RV2011-0EA15** | | **3RV2011-0EA25** | |
| 0.5 | 0.12 | 0.35 ... 0.5 | 6.5 | 100 | **3RV2011-0FA15** | | **3RV2011-0FA25** | |
| 0.63 | 0.18 | 0.45 ... 0.63 | 8.2 | 100 | **3RV2011-0GA15** | | **3RV2011-0GA25** | |
| 0.8 | 0.18 | 0.55 ... 0.8 | 10 | 100 | **3RV2011-0HA15** | | **3RV2011-0HA25** | |
| 1 | 0.25 | 0.7 ... 1 | 13 | 100 | **3RV2011-0JA15** | | **3RV2011-0JA25** | |
| 1.25 | 0.37 | 0.9 ... 1.25 | 16 | 100 | **3RV2011-0KA15** | | **3RV2011-0KA25** | |
| 1.6 | 0.55 | 1.1 ... 1.6 | 21 | 100 | **3RV2011-1AA15** | | **3RV2011-1AA25** | |
| 2 | 0.75 | 1.4 ... 2 | 26 | 100 | **3RV2011-1BA15** | | **3RV2011-1BA25** | |
| 2.5 | 0.75 | 1.8 ... 2.5 | 33 | 100 | **3RV2011-1CA15** | | **3RV2011-1CA25** | |
| 3.2 | 1.1 | 2.2 ... 3.2 | 42 | 100 | **3RV2011-1DA15** | | **3RV2011-1DA25** | |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | **3RV2011-1EA15** | | **3RV2011-1EA25** | |
| 5 | 1.5 | 3.5 ... 5 | 65 | 100 | **3RV2011-1FA15** | | **3RV2011-1FA25** | |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | **3RV2011-1GA15** | | **3RV2011-1GA25** | |
| 8 | 3 | 5.5 ... 8 | 104 | 100 | **3RV2011-1HA15** | | **3RV2011-1HA25** | |
| 10 | 4 | 7 ... 10 | 130 | 100 | **3RV2011-1JA15** | | **3RV2011-1JA25** | |
| 12.5 | 5.5 | 9 ... 12.5 | 163 | 100 | **3RV2011-1KA15** | | **3RV2011-1KA25** | |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | **3RV2011-4AA15** | | **3RV2011-4AA25** | |
| ***For special operating conditions down to -50 °C[2)3)]*** | | | | | | | | |
| 2 | 0.06 | 1.4 ... 2 | 2.6 | 100 | **3RV2011-1BA15-0BA0** | | **--** | |
| 2.5 | 0.75 | 1.8 ... 2.5 | 33 | 100 | **3RV2011-1CA15-0BA0** | | **--** | |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | **3RV2011-1EA15-0BA0** | | **3RV2011-1EA25-0BA0** | |
| 5 | 1.5 | 3.5 ... 5 | 65 | 100 | **3RV2011-1FA15-0BA0** | | **--** | |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | **3RV2011-1GA15-0BA0** | | **--** | |
| 8 | 3 | 5.5 ... 8 | 104 | 100 | **3RV2011-1HA15-0BA0** | | **--** | |
| 12.5 | 5.5 | 9 ... 12.5 | 163 | 100 | **3RV2011-1KA15-0BA0** | | **--** | |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | **3RV2011-4AA15-0BA0** | | **--** | |
| **Size S0** | | | | | | | | |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | **3RV2021-4AA15** | | **3RV2021-4AA25** | |
| 20 | 7.5 | 13 ... 20 | 260 | 55 | **3RV2021-4BA15** | | **3RV2021-4BA25** | |
| 22 | 11 | 16 ... 22 | 286 | 55 | **3RV2021-4CA15** | | **3RV2021-4CA25** | |
| 25 | 11 | 18 ... 25 | 325 | 55 | **3RV2021-4DA15** | | **3RV2021-4DA25** | |
| 28 | 15 | 23 ... 28 | 364 | 55 | **3RV2021-4NA15** | | **3RV2021-4NA25** | |
| 32[4)] | 15 | 27 ... 32 | 400 | 55 | **3RV2021-4EA15** | | **3RV2021-4EA25** | |
| 36[5)] | 18.5 | 30 ... 36 | 432 | 20 | **3RV2021-4PA15** | | **--** | |
| 40[5)] | 18.5 | 34 ... 40 | 480 | 20 | **3RV2021-4FA15** | | **--** | |
| ***For special operating conditions down to -50 °C[2)3)]*** | | | | | | | | |
| 20 | 7.5 | 13 ... 20 | 260 | 55 | **3RV2021-4BA15-0BA0** | | **--** | |
| 32[4)] | 15 | 27 ... 32 | 400 | 55 | **3RV2021-4EA15-0BA0** | | **--** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) The 3RV20.1-.....-0BA0 motor starter protectors in sizes S00 and S0 have a mechanical endurance of 500 operating cycles.

3) The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

4) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using 3RV2 motor starter protectors size S2.

5) The devices must not be mounted side-by-side and they must not be assembled with link modules with contactors. A lateral clearance of 9 mm is required. For use with IE3 and IE4 motors we recommend using 3RV2 motor starter protectors size S2.

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).

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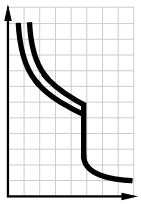
**For motor protection** ***IE3/IE4 ready*** **AC-3e**

***CLASS 10, with transverse auxiliary switch (1 NO + 1 NC)***



3RV2031-4..15,
3RV2031-4.A15-0BA0

3RV2032-4.A15

3RV2041-4.A15

| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | **Screw terminals** | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | | | |
| A | kW | A | A | kA | | | | | |
| **Size S2** | | | | | | | | | |
| 14 | 5.5 | 9.5 ... 14 | 208 | 65 | **3RV2031-4SA15** | | 1 | 1 unit | 41E |
| 17 | 7.5 | 12 ... 17 | 260 | 65 | **3RV2031-4TA15** | | 1 | 1 unit | 41E |
| 20 | 7.5 | 14 ... 20 | 260 | 65 | **3RV2031-4BA15** | | 1 | 1 unit | 41E |
| 25 | 11 | 18 ... 25 | 325 | 65 | **3RV2031-4DA15** | | 1 | 1 unit | 41E |
| 32 | 15 | 22 ... 32 | 416 | 65 | **3RV2031-4EA15** | | 1 | 1 unit | 41E |
| 36 | 18.5 | 28 ... 36 | 520 | 65 | **3RV2031-4PA15** | | 1 | 1 unit | 41E |
| 40 | 18.5 | 32 ... 40 | 585 | 65 | **3RV2031-4UA15** | | 1 | 1 unit | 41E |
| 45 | 22 | 35 ... 45 | 650 | 65 | **3RV2031-4VA15** | | 1 | 1 unit | 41E |
| 52 | 22 | 42 ... 52 | 741 | 65 | **3RV2031-4WA15** | | 1 | 1 unit | 41E |
| 59 | 30 | 49 ... 59 | 845 | 65 | **3RV2031-4XA15** | | 1 | 1 unit | 41E |
| 65 | 30 | 54 ... 65 | 845 | 65 | **3RV2031-4JA15** | | 1 | 1 unit | 41E |
| 73 | 37 | 62 ... 73 | 949 | 65 | **3RV2031-4KA15** | | 1 | 1 unit | 41E |
| 80[2] | 37 | 70 ... 80 | 1 040 | 65 | **3RV2031-4RA15** | | 1 | 1 unit | 41E |
| ***For special operating conditions down to -50 °C[3][4]*** | | | | | | | | | |
| 14 | 5.5 | 9.5 ... 14 | 208 | 65 | **3RV2031-4SA15-0BA0** | | 1 | 1 unit | 41E |
| 20 | 7.5 | 14 ... 20 | 260 | 65 | **3RV2031-4BA15-0BA0** | | 1 | 1 unit | 41E |
| 32 | 15 | 22 ... 32 | 416 | 65 | **3RV2031-4EA15-0BA0** | | 1 | 1 unit | 41E |
| 45 | 22 | 35 ... 45 | 650 | 65 | **3RV2031-4VA15-0BA0** | | 1 | 1 unit | 41E |
| **Size S2, with increased switching capacity** | | | | | | | | | |
| 14 | 5.5 | 9.5 ... 14 | 208 | 10 | **3RV2032-4SA15** | | 1 | 1 unit | 41E |
| 17 | 7.5 | 12 ... 17 | 260 | 100 | **3RV2032-4TA15** | | 1 | 1 unit | 41E |
| 20 | 7.5 | 14 ... 20 | 260 | 100 | **3RV2032-4BA15** | | 1 | 1 unit | 41E |
| 25 | 11 | 18 ... 25 | 325 | 100 | **3RV2032-4DA15** | | 1 | 1 unit | 41E |
| 32 | 15 | 22 ... 32 | 416 | 100 | **3RV2032-4EA15** | | 1 | 1 unit | 41E |
| 36 | 18.5 | 28 ... 36 | 520 | 100 | **3RV2032-4PA15** | | 1 | 1 unit | 41E |
| 40 | 18.5 | 32 ... 40 | 585 | 100 | **3RV2032-4UA15** | | 1 | 1 unit | 41E |
| 45 | 22 | 35 ... 45 | 650 | 100 | **3RV2032-4VA15** | | 1 | 1 unit | 41E |
| 52 | 22 | 42 ... 52 | 741 | 100 | **3RV2032-4WA15** | | 1 | 1 unit | 41E |
| 59 | 30 | 49 ... 59 | 845 | 100 | **3RV2032-4XA15** | | 1 | 1 unit | 41E |
| 65 | 30 | 54 ... 65 | 845 | 100 | **3RV2032-4JA15** | | 1 | 1 unit | 41E |
| 73 | 37 | 62 ... 73 | 949 | 100 | **3RV2032-4KA15** | | 1 | 1 unit | 41E |
| 80[2] | 37 | 70 ... 80 | 1 040 | 100 | **3RV2032-4RA15** | | 1 | 1 unit | 41E |
| **Size S3** | | | | | | | | | |
| 40 | 18.5 | 28 ... 40 | 520 | 65 | **3RV2041-4FA15** | | 1 | 1 unit | 41E |
| 50 | 22 | 36 ... 50 | 650 | 65 | **3RV2041-4HA15** | | 1 | 1 unit | 41E |
| 63 | 30 | 45 ... 63 | 819 | 65 | **3RV2041-4JA15** | | 1 | 1 unit | 41E |
| 75 | 37 | 57 ... 75 | 975 | 65 | **3RV2041-4KA15** | | 1 | 1 unit | 41E |
| 84 | 45 | 65 ... 84 | 1 170 | 65 | **3RV2041-4RA15** | | 1 | 1 unit | 41E |
| 93 | 45 | 75 ... 93 | 1 300 | 65 | **3RV2041-4YA15** | | 1 | 1 unit | 41E |
| 100[5] | 45, 55 | 80 ... 100 | 1 300 | 65 | **3RV2041-4MA15** | | 1 | 1 unit | 41E |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Suitable for use with IE3 and IE4 motors up to a starting current of 720 A. For higher starting currents we recommend using 3RV2 motor starter protectors size S3.

3) The 3RV2031-.....-0BA0 motor starter protectors have a mechanical endurance of 250 operating cycles.

4) The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

5) Suitable for use with IE3 and IE4 motors up to a starting current of 780 A. For higher starting currents we recommend using 3VA circuit breakers (see Catalog LV 10).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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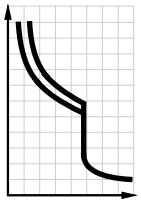
***CLASS 20, without auxiliary switches***



3RV2031-4.B10,
14 to 45 A;
3RV2031-4.B10-0BA0;
32 to 40 A

3RV2031-4.B10,
52 to 65 A

3RV2042-4.B10,
40 to 100 A

| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | | | |
| A | kW | A | A | kA | | | | | |
| **Size S2** | | | | | | | | | |
| 14 | 5.5 | 9.5 ... 14 | 208 | 65 | **3RV2031-4SB10** | | 1 | 1 unit | 41E |
| 17 | 7.5 | 12 ... 17 | 260 | 65 | **3RV2031-4TB10** | | 1 | 1 unit | 41E |
| 20 | 7.5 | 14 ... 20 | 260 | 65 | **3RV2031-4BB10** | | 1 | 1 unit | 41E |
| 25 | 11 | 18 ... 25 | 325 | 65 | **3RV2031-4DB10** | | 1 | 1 unit | 41E |
| 32 | 15 | 22 ... 32 | 416 | 65 | **3RV2031-4EB10** | | 1 | 1 unit | 41E |
| 36 | 18.5 | 28 ... 36 | 520 | 65 | **3RV2031-4PB10** | | 1 | 1 unit | 41E |
| 40 | 18.5 | 32 ... 40 | 585 | 65 | **3RV2031-4UB10** | | 1 | 1 unit | 41E |
| 45 | 22 | 35 ... 45 | 650 | 65 | **3RV2031-4VB10** | | 1 | 1 unit | 41E |
| 52 | 22 | 42 ... 52 | 741 | 65 | **3RV2031-4WB10** | | 1 | 1 unit | 41E |
| 59 | 30 | 49 ... 59 | 845 | 65 | **3RV2031-4XB10** | | 1 | 1 unit | 41E |
| 65 | 30 | 54 ... 65 | 845 | 65 | **3RV2031-4JB10** | | 1 | 1 unit | 41E |
| ***For special operating conditions down to -50 °C[2][3]*** | | | | | | | | | |
| 32 | 15 | 22 ... 32 | 416 | 65 | **3RV2031-4EB10-0BA0** | | 1 | 1 unit | 41E |
| 36 | 18.5 | 28 ... 36 | 520 | 65 | **3RV2031-4PB10-0BA0** | | 1 | 1 unit | 41E |
| 40 | 18.5 | 32 ... 40 | 585 | 65 | **3RV2031-4UB10-0BA0** | | 1 | 1 unit | 41E |
| **Size S3, with increased switching capacity** | | | | | | | | | |
| 40 | 18.5 | 28 ... 40 | 520 | 100 | **3RV2042-4FB10** | | 1 | 1 unit | 41E |
| 50 | 22 | 36 ... 50 | 650 | 100 | **3RV2042-4HB10** | | 1 | 1 unit | 41E |
| 63 | 30 | 45 ... 63 | 819 | 100 | **3RV2042-4JB10** | | 1 | 1 unit | 41E |
| 75 | 37 | 57 ... 75 | 975 | 100 | **3RV2042-4KB10** | | 1 | 1 unit | 41E |
| 84 | 45 | 65 ... 84 | 1 170 | 100 | **3RV2042-4RB10** | | 1 | 1 unit | 41E |
| 93 | 45 | 75 ... 93 | 1 300 | 100 | **3RV2042-4YB10** | | 1 | 1 unit | 41E |
| 100[4] | 45, 55 | 80 ... 100 | 1 300 | 100 | **3RV2042-4MB10** | | 1 | 1 unit | 41E |

[1] Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

[2] The 3RV2031-.....-0BA0 motor starter protectors have a mechanical endurance of 250 operating cycles.

[3] The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

[4] Suitable for use with IE3 and IE4 motors up to a starting current of 780 A. For higher starting currents we recommend using 3VA circuit breakers (see Catalog LV 10).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).

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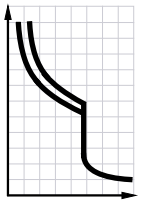
**For motor protection** ***IE3/IE4 ready*** **AC-3e**

***CLASS 20, with transverse auxiliary switch (1 NO + 1 NC)***



3RV2031-4.B15,
14 to 45 A

3RV2031-4.B15,
52 to 65 A

| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $I_n$ | | ⊏ | $I >$ | $I_{cu}$ | Article No. | Price per PU | | | |
| A | kW | A | A | kA | | | | | |
| **Size S2** | | | | | | | | | |
| 14 | 5.5 | 9.5 ... 14 | 208 | 65 | **3RV2031-4SB15** | | 1 | 1 unit | 41E |
| 17 | 7.5 | 12 ... 17 | 260 | 65 | **3RV2031-4TB15** | | 1 | 1 unit | 41E |
| 20 | 7.5 | 14 ... 20 | 260 | 65 | **3RV2031-4BB15** | | 1 | 1 unit | 41E |
| 25 | 11 | 18 ... 25 | 325 | 65 | **3RV2031-4DB15** | | 1 | 1 unit | 41E |
| 32 | 15 | 22 ... 32 | 416 | 65 | **3RV2031-4EB15** | | 1 | 1 unit | 41E |
| 36 | 18.5 | 28 ... 36 | 520 | 65 | **3RV2031-4PB15** | | 1 | 1 unit | 41E |
| 40 | 18.5 | 32 ... 40 | 585 | 65 | **3RV2031-4UB15** | | 1 | 1 unit | 41E |
| 45 | 22 | 35 ... 45 | 650 | 65 | **3RV2031-4VB15** | | 1 | 1 unit | 41E |
| 52 | 22 | 42 ... 52 | 741 | 65 | **3RV2031-4WB15** | | 1 | 1 unit | 41E |
| 59 | 30 | 49 ... 59 | 845 | 65 | **3RV2031-4XB15** | | 1 | 1 unit | 41E |
| 65 | 30 | 54 ... 65 | 845 | 65 | **3RV2031-4JB15** | | 1 | 1 unit | 41E |

[1] Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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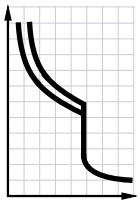
## Selection and ordering data

***CLASS 10, with overload relay function (automatic RESET), without auxiliary switches***



3RV2111-..A10

3RV2121-4.A10

| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | | | |
| A | kW | A | A | kA | | | | | |
| **Size S00[2]** | | | | | | | | | |
| 0.16 | 0.04 | 0.11 ... 0.16 | 2.1 | 100 | **3RV2111-0AA10** | | 1 | 1 unit | 41E |
| 0.2 | 0.06 | 0.14 ... 0.2 | 2.6 | 100 | **3RV2111-0BA10** | | 1 | 1 unit | 41E |
| 0.25 | 0.06 | 0.18 ... 0.25 | 3.3 | 100 | **3RV2111-0CA10** | | 1 | 1 unit | 41E |
| 0.32 | 0.09 | 0.22 ... 0.32 | 4.2 | 100 | **3RV2111-0DA10** | | 1 | 1 unit | 41E |
| 0.4 | 0.09 | 0.28 ... 0.4 | 5.2 | 100 | **3RV2111-0EA10** | | 1 | 1 unit | 41E |
| 0.5 | 0.12 | 0.35 ... 0.5 | 6.5 | 100 | **3RV2111-0FA10** | | 1 | 1 unit | 41E |
| 0.63 | 0.18 | 0.45 ... 0.63 | 8.2 | 100 | **3RV2111-0GA10** | | 1 | 1 unit | 41E |
| 0.8 | 0.18 | 0.55 ... 0.8 | 10 | 100 | **3RV2111-0HA10** | | 1 | 1 unit | 41E |
| 1 | 0.25 | 0.7 ... 1 | 13 | 100 | **3RV2111-0JA10** | | 1 | 1 unit | 41E |
| 1.25 | 0.37 | 0.9 ... 1.25 | 16 | 100 | **3RV2111-0KA10** | | 1 | 1 unit | 41E |
| 1.6 | 0.55 | 1.1 ... 1.6 | 21 | 100 | **3RV2111-1AA10** | | 1 | 1 unit | 41E |
| 2 | 0.75 | 1.4 ... 2 | 26 | 100 | **3RV2111-1BA10** | | 1 | 1 unit | 41E |
| 2.5 | 0.75 | 1.8 ... 2.5 | 33 | 100 | **3RV2111-1CA10** | | 1 | 1 unit | 41E |
| 3.2 | 1.1 | 2.2 ... 3.2 | 42 | 100 | **3RV2111-1DA10** | | 1 | 1 unit | 41E |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | **3RV2111-1EA10** | | 1 | 1 unit | 41E |
| 5 | 1.5 | 3.5 ... 5 | 65 | 100 | **3RV2111-1FA10** | | 1 | 1 unit | 41E |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | **3RV2111-1GA10** | | 1 | 1 unit | 41E |
| 8 | 3 | 5.5 ... 8 | 104 | 100 | **3RV2111-1HA10** | | 1 | 1 unit | 41E |
| 10 | 4 | 7 ... 10 | 130 | 100 | **3RV2111-1JA10** | | 1 | 1 unit | 41E |
| 12.5 | 5.5 | 9 ... 12.5 | 163 | 100 | **3RV2111-1KA10** | | 1 | 1 unit | 41E |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | **3RV2111-4AA10** | | 1 | 1 unit | 41E |
| **Size S0[2]** | | | | | | | | | |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | **3RV2121-4AA10** | | 1 | 1 unit | 41E |
| 20 | 7.5 | 13 ... 20 | 260 | 55 | **3RV2121-4BA10** | | 1 | 1 unit | 41E |
| 22 | 11 | 16 ... 22 | 286 | 55 | **3RV2121-4CA10** | | 1 | 1 unit | 41E |
| 25 | 11 | 18 ... 25 | 325 | 55 | **3RV2121-4DA10** | | 1 | 1 unit | 41E |
| 28 | 15 | 23 ... 28 | 364 | 55 | **3RV2121-4NA10** | | 1 | 1 unit | 41E |
| 32[3] | 15 | 27 ... 32 | 400 | 55 | **3RV2121-4EA10** | | 1 | 1 unit | 41E |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Accessories for mounting on the right and 3RV1915 3-phase busbars cannot be used.

3) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using 3RV2 motor starter protectors size S2.

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).

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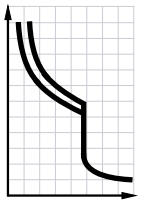
## For motor protection with overload relay function IE3/IE4 ready AC-3e

***CLASS 10, with overload relay function (Automatic RESET), without auxiliary switches***



3RV2131-4.A10

3RV2142-4.A10

| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | | | |
| A | kW | A | A | kA | | | | | |
| **Size S2[2]** | | | | | | | | | |
| 14 | 5.5 | 9.5 ... 14 | 208 | 65 | **3RV2131-4SA10** | | 1 | 1 unit | 41E |
| 17 | 7.5 | 12 ... 17 | 260 | 65 | **3RV2131-4TA10** | | 1 | 1 unit | 41E |
| 20 | 7.5 | 14 ... 20 | 260 | 65 | **3RV2131-4BA10** | | 1 | 1 unit | 41E |
| 25 | 11 | 18 ... 25 | 325 | 65 | **3RV2131-4DA10** | | 1 | 1 unit | 41E |
| 32 | 15 | 22 ... 32 | 416 | 65 | **3RV2131-4EA10** | | 1 | 1 unit | 41E |
| 36 | 18.5 | 28 ... 36 | 520 | 65 | **3RV2131-4PA10** | | 1 | 1 unit | 41E |
| 40 | 18.5 | 32 ... 40 | 585 | 65 | **3RV2131-4UA10** | | 1 | 1 unit | 41E |
| 45 | 22 | 35 ... 45 | 650 | 65 | **3RV2131-4VA10** | | 1 | 1 unit | 41E |
| 52 | 32 | 42 ... 52 | 741 | 65 | **3RV2131-4WA10** | | 1 | 1 unit | 41E |
| 59 | 30 | 49 ... 59 | 845 | 65 | **3RV2131-4XA10** | | 1 | 1 unit | 41E |
| 65 | 30 | 54 ... 65 | 845 | 65 | **3RV2131-4JA10** | | 1 | 1 unit | 41E |
| 73 | 37 | 62 ... 73 | 949 | 65 | **3RV2131-4KA10** | | 1 | 1 unit | 41E |
| 80[3] | 37 | 70 ... 80 | 1 040 | 65 | **3RV2131-4RA10** | | 1 | 1 unit | 41E |
| **Size S3, with increased switching capacity[2]** | | | | | | | | | |
| 40 | 18.5 | 28 ... 40 | 520 | 100 | **3RV2142-4FA10** | | 1 | 1 unit | 41E |
| 50 | 22 | 36 ... 50 | 650 | 100 | **3RV2142-4HA10** | | 1 | 1 unit | 41E |
| 63 | 30 | 45 ... 63 | 819 | 100 | **3RV2142-4JA10** | | 1 | 1 unit | 41E |
| 75 | 37 | 57 ... 75 | 975 | 100 | **3RV2142-4KA10** | | 1 | 1 unit | 41E |
| 84 | 45 | 65 ... 84 | 1 170 | 100 | **3RV2142-4RA10** | | 1 | 1 unit | 41E |
| 93 | 45 | 75 ... 93 | 1 300 | 100 | **3RV2142-4YA10** | | 1 | 1 unit | 41E |
| 100[4] | 45, 55 | 80 ... 100 | 1 300 | 100 | **3RV2142-4MA10** | | 1 | 1 unit | 41E |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Accessories for mounting on the right cannot be used.

3) Suitable for use with IE3 and IE4 motors up to a starting current of 720 A. For higher starting currents we recommend using 3RV2 motor starter protectors size S3.

4) Suitable for use with IE3 and IE4 motors up to a starting current of 780 A. For higher starting currents we recommend using 3VA circuit breakers (see Catalog LV 10).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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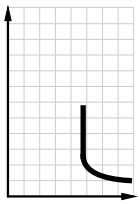
## Selection and ordering data

### *Without auxiliary switches*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV2311-..C10

3RV2311-..C20,
3RV2311-4AC20-0BA0

| Rated current | Suitable for three-phase motors[1] with *P* | Thermal overload release[2] | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | A | A | kA | | | | |
| **Size S00** | | | | | | | | |
| 0.16 | 0.04 | Without | 2.1 | 100 | **3RV2311-0AC10** | | **3RV2311-0AC20** | |
| 0.2 | 0.06 | Without | 2.6 | 100 | **3RV2311-0BC10** | | **3RV2311-0BC20** | |
| 0.25 | 0.06 | Without | 3.3 | 100 | **3RV2311-0CC10** | | **3RV2311-0CC20** | |
| 0.32 | 0.09 | Without | 4.2 | 100 | **3RV2311-0DC10** | | **3RV2311-0DC20** | |
| 0.4 | 0.09 | Without | 5.2 | 100 | **3RV2311-0EC10** | | **3RV2311-0EC20** | |
| 0.5 | 0.12 | Without | 6.5 | 100 | **3RV2311-0FC10** | | **3RV2311-0FC20** | |
| 0.63 | 0.18 | Without | 8.2 | 100 | **3RV2311-0GC10** | | **3RV2311-0GC20** | |
| 0.8 | 0.18 | Without | 10 | 100 | **3RV2311-0HC10** | | **3RV2311-0HC20** | |
| 1 | 0.25 | Without | 13 | 100 | **3RV2311-0JC10** | | **3RV2311-0JC20** | |
| 1.25 | 0.37 | Without | 16 | 100 | **3RV2311-0KC10** | | **3RV2311-0KC20** | |
| 1.6 | 0.55 | Without | 21 | 100 | **3RV2311-1AC10** | | **3RV2311-1AC20** | |
| 2 | 0.75 | Without | 26 | 100 | **3RV2311-1BC10** | | **3RV2311-1BC20** | |
| 2.5 | 0.75 | Without | 33 | 100 | **3RV2311-1CC10** | | **3RV2311-1CC20** | |
| 3.2 | 1.1 | Without | 42 | 100 | **3RV2311-1DC10** | | **3RV2311-1DC20** | |
| 4 | 1.5 | Without | 52 | 100 | **3RV2311-1EC10** | | **3RV2311-1EC20** | |
| 5 | 1.5 | Without | 65 | 100 | **3RV2311-1FC10** | | **3RV2311-1FC20** | |
| 6.3 | 2.2 | Without | 82 | 100 | **3RV2311-1GC10** | | **3RV2311-1GC20** | |
| 8 | 3 | Without | 104 | 100 | **3RV2311-1HC10** | | **3RV2311-1HC20** | |
| 10 | 4 | Without | 130 | 100 | **3RV2311-1JC10** | | **3RV2311-1JC20** | |
| 12.5 | 5.5 | Without | 163 | 100 | **3RV2311-1KC10** | | **3RV2311-1KC20** | |
| 16 | 7.5 | Without | 208 | 55 | **3RV2311-4AC10** | | **3RV2311-4AC20** | |
| ***For special operating conditions down to -50 °C[3][4]*** | | | | | | | | |
| 16 | 7.5 | Without | 208 | 55 | -- | | **3RV2311-4AC20-0BA0** | |

[1] Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

[2] For overload protection of the motors, appropriate overload relays must be used.

[3] The 3RV2311-.....-0BA0 motor starter protectors have a mechanical endurance of 500 operating cycles.

[4] The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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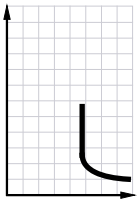
## For starter combinations *IE3/IE4* ready AC-3e

### *Without auxiliary switches*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV2321-..C10

3RV2321-..C20,
3RV2321-4AC20-0BA0

| Rated current | Suitable for three-phase motors[1] with *P* | Thermal overload release[2] | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | A | A | kA | | | | |
| **Size S0** | | | | | | | | |
| 1.6 | 0.55 | Without | 21 | 100 | **3RV2321-1AC10** | | **3RV2321-1AC20** | |
| 2 | 0.75 | Without | 26 | 100 | **3RV2321-1BC10** | | **3RV2321-1BC20** | |
| 2.5 | 0.75 | Without | 33 | 100 | **3RV2321-1CC10** | | **3RV2321-1CC20** | |
| 3.2 | 1.1 | Without | 42 | 100 | **3RV2321-1DC10** | | **3RV2321-1DC20** | |
| 4 | 1.5 | Without | 52 | 100 | **3RV2321-1EC10** | | **3RV2321-1EC20** | |
| 5 | 1.5 | Without | 65 | 100 | **3RV2321-1FC10** | | **3RV2321-1FC20** | |
| 6.3 | 2.2 | Without | 82 | 100 | **3RV2321-1GC10** | | **3RV2321-1GC20** | |
| 8 | 3 | Without | 104 | 100 | **3RV2321-1HC10** | | **3RV2321-1HC20** | |
| 10 | 4 | Without | 130 | 100 | **3RV2321-1JC10** | | **3RV2321-1JC20** | |
| 12.5 | 5.5 | Without | 163 | 100 | **3RV2321-1KC10** | | **3RV2321-1KC20** | |
| 16 | 7.5 | Without | 208 | 55 | **3RV2321-4AC10** | | **3RV2321-4AC20** | |
| 20 | 7.5 | Without | 260 | 55 | **3RV2321-4BC10** | | **3RV2321-4BC20** | |
| 22 | 11 | Without | 286 | 55 | **3RV2321-4CC10** | | **3RV2321-4CC20** | |
| 25 | 11 | Without | 325 | 55 | **3RV2321-4DC10** | | **3RV2321-4DC20** | |
| 28 | 15 | Without | 364 | 55 | **3RV2321-4NC10** | | **3RV2321-4NC20** | |
| 32[3] | 15 | Without | 400 | 55 | **3RV2321-4EC10** | | **3RV2321-4EC20** | |
| 36[4] | 18.5 | Without | 432 | 20 | **3RV2321-4PC10** | | **--** | |
| 40[4] | 18.5 | Without | 480 | 20 | **3RV2321-4FC10** | | **--** | |
| ***For special operating conditions down to -50 °C***[5][6] | | | | | | | | |
| 16 | 7.5 | Without | 208 | 55 | **--** | | **3RV2321-4AC20-0BA0** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) For overload protection of the motors, appropriate overload relays must be used.

3) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using 3RV2 motor starter protectors size S2.

4) The devices must not be mounted side-by-side and they must not be assembled with link modules with contactors. A lateral clearance of 9 mm is required. For use with IE3 and IE4 motors we recommend using 3RV2 motor starter protectors size S2.

5) The 3RV2321-.....-0BA0 motor starter protectors have a mechanical endurance of 500 operating cycles.

6) The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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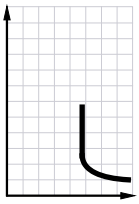
***Without auxiliary switches***



3RV2331-4.C10,
14 to 45 A

3RV2331-4.C10,
52 to 80 A

3RV2332-4.C10,
14 to 45 A

3RV2332-4.C10,
52 to 80 A

3RV234.-4.C10,
40 to 100 A

| Rated current | Suitable for three-phase motors[1] with *P* | Thermal overload release[2] | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | | | |
| A | kW | A | A | kA | | | | | |
| **Size S2** | | | | | | | | | |
| 14 | 5.5 | Without | 208 | 65 | **3RV2331-4SC10** | | 1 | 1 unit | 41E |
| 17 | 7.5 | Without | 260 | 65 | **3RV2331-4TC10** | | 1 | 1 unit | 41E |
| 20 | 7.5 | Without | 260 | 65 | **3RV2331-4BC10** | | 1 | 1 unit | 41E |
| 25 | 11 | Without | 325 | 65 | **3RV2331-4DC10** | | 1 | 1 unit | 41E |
| 32 | 15 | Without | 416 | 65 | **3RV2331-4EC10** | | 1 | 1 unit | 41E |
| 36 | 18.5 | Without | 520 | 65 | **3RV2331-4PC10** | | 1 | 1 unit | 41E |
| 40 | 18.5 | Without | 585 | 65 | **3RV2331-4UC10** | | 1 | 1 unit | 41E |
| 45 | 22 | Without | 650 | 65 | **3RV2331-4VC10** | | 1 | 1 unit | 41E |
| 52 | 22 | Without | 741 | 65 | **3RV2331-4WC10** | | 1 | 1 unit | 41E |
| 59 | 30 | Without | 845 | 65 | **3RV2331-4XC10** | | 1 | 1 unit | 41E |
| 65 | 30 | Without | 845 | 65 | **3RV2331-4JC10** | | 1 | 1 unit | 41E |
| 73 | 37 | Without | 949 | 65 | **3RV2331-4KC10** | | 1 | 1 unit | 41E |
| 80[3] | 37 | Without | 1040 | 65 | **3RV2331-4RC10** | | 1 | 1 unit | 41E |
| **Size S2, with increased switching capacity** | | | | | | | | | |
| 14 | 5.5 | Without | 208 | 100 | **3RV2332-4SC10** | | 1 | 1 unit | 41E |
| 17 | 7.5 | Without | 260 | 100 | **3RV2332-4TC10** | | 1 | 1 unit | 41E |
| 20 | 7.5 | Without | 260 | 100 | **3RV2332-4BC10** | | 1 | 1 unit | 41E |
| 25 | 11 | Without | 325 | 100 | **3RV2332-4DC10** | | 1 | 1 unit | 41E |
| 32 | 15 | Without | 416 | 100 | **3RV2332-4EC10** | | 1 | 1 unit | 41E |
| 36 | 18.5 | Without | 520 | 100 | **3RV2332-4PC10** | | 1 | 1 unit | 41E |
| 40 | 18.5 | Without | 585 | 100 | **3RV2332-4UC10** | | 1 | 1 unit | 41E |
| 45 | 22 | Without | 650 | 100 | **3RV2332-4VC10** | | 1 | 1 unit | 41E |
| 52 | 22 | Without | 741 | 100 | **3RV2332-4WC10** | | 1 | 1 unit | 41E |
| 59 | 30 | Without | 845 | 100 | **3RV2332-4XC10** | | 1 | 1 unit | 41E |
| 65 | 30 | Without | 845 | 100 | **3RV2332-4JC10** | | 1 | 1 unit | 41E |
| 73 | 37 | Without | 949 | 100 | **3RV2332-4KC10** | | 1 | 1 unit | 41E |
| 80[3] | 37 | Without | 1 040 | 100 | **3RV2332-4RC10** | | 1 | 1 unit | 41E |
| **Size S3** | | | | | | | | | |
| 40 | 18.5 | Without | 520 | 65 | **3RV2341-4FC10** | | 1 | 1 unit | 41E |
| 50 | 22 | Without | 650 | 65 | **3RV2341-4HC10** | | 1 | 1 unit | 41E |
| 63 | 30 | Without | 819 | 65 | **3RV2341-4JC10** | | 1 | 1 unit | 41E |
| 75 | 37 | Without | 975 | 65 | **3RV2341-4KC10** | | 1 | 1 unit | 41E |
| 84 | 45 | Without | 1 170 | 65 | **3RV2341-4RC10** | | 1 | 1 unit | 41E |
| 93 | 45 | Without | 1 300 | 65 | **3RV2341-4YC10** | | 1 | 1 unit | 41E |
| 100[4] | 45, 55 | Without | 1 300 | 65 | **3RV2341-4MC10** | | 1 | 1 unit | 41E |
| **Size S3, with increased switching capacity** | | | | | | | | | |
| 40 | 18.5 | Without | 520 | 100 | **3RV2342-4FC10** | | 1 | 1 unit | 41E |
| 50 | 22 | Without | 650 | 100 | **3RV2342-4HC10** | | 1 | 1 unit | 41E |
| 63 | 30 | Without | 819 | 100 | **3RV2342-4JC10** | | 1 | 1 unit | 41E |
| 75 | 37 | Without | 975 | 100 | **3RV2342-4KC10** | | 1 | 1 unit | 41E |
| 84 | 45 | Without | 1 170 | 100 | **3RV2342-4RC10** | | 1 | 1 unit | 41E |
| 93 | 45 | Without | 1 300 | 100 | **3RV2342-4YC10** | | 1 | 1 unit | 41E |
| 100[4] | 45, 55 | Without | 1 300 | 100 | **3RV2342-4MC10** | | 1 | 1 unit | 41E |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) For overload protection of the motors, appropriate overload relays must be used.

3) Suitable for use with IE3 and IE4 motors up to a starting current of 720 A. For higher starting currents we recommend using 3RV2 motor starter protectors size S3.

4) Suitable for use with IE3 and IE4 motors up to a starting current of 780 A. For higher starting currents we recommend using 3VA circuit breakers (see Catalog LV 10).

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).

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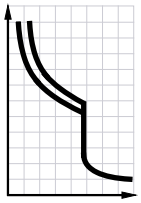
## For transformer protection

### Selection and ordering data

***CLASS 10, without auxiliary switches***

Motor starter protectors for the protection of transformers with high inrush current

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV2411-..A10,
3RV2411-..A10-0BA0

3RV2411-..A20

| Rated current | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| $I_n$ | | $I >$ | $I_{cu}$ | Article No. | Price per PU | Article No. | Price per PU |
| A | A | A | kA | | | | |
| **Size S00** | | | | | | | |
| 0.16 | 0.11 ... 0.16 | 3.3 | 100 | **3RV2411-0AA10** | | **3RV2411-0AA20** | |
| 0.2 | 0.14 ... 0.2 | 4.2 | 100 | **3RV2411-0BA10** | | **3RV2411-0BA20** | |
| 0.25 | 0.18 ... 0.25 | 5.2 | 100 | **3RV2411-0CA10** | | **3RV2411-0CA20** | |
| 0.32 | 0.22 ... 0.32 | 6.5 | 100 | **3RV2411-0DA10** | | **3RV2411-0DA20** | |
| 0.4 | 0.28 ... 0.4 | 8.2 | 100 | **3RV2411-0EA10** | | **3RV2411-0EA20** | |
| 0.5 | 0.35 ... 0.5 | 10 | 100 | **3RV2411-0FA10** | | **3RV2411-0FA20** | |
| 0.63 | 0.45 ... 0.63 | 13 | 100 | **3RV2411-0GA10** | | **3RV2411-0GA20** | |
| 0.8 | 0.55 ... 0.8 | 16 | 100 | **3RV2411-0HA10** | | **3RV2411-0HA20** | |
| 1 | 0.7 ... 1 | 21 | 100 | **3RV2411-0JA10** | | **3RV2411-0JA20** | |
| 1.25 | 0.9 ... 1.25 | 26 | 100 | **3RV2411-0KA10** | | **3RV2411-0KA20** | |
| 1.6 | 1.1 ... 1.6 | 33 | 100 | **3RV2411-1AA10** | | **3RV2411-1AA20** | |
| 2 | 1.4 ... 2 | 42 | 100 | **3RV2411-1BA10** | | **3RV2411-1BA20** | |
| 2.5 | 1.8 ... 2.5 | 52 | 100 | **3RV2411-1CA10** | | **3RV2411-1CA20** | |
| 3.2 | 2.2 ... 3.2 | 65 | 100 | **3RV2411-1DA10** | | **3RV2411-1DA20** | |
| 4 | 2.8 ... 4 | 82 | 100 | **3RV2411-1EA10** | | **3RV2411-1EA20** | |
| 5 | 3.5 ... 5 | 104 | 100 | **3RV2411-1FA10** | | **3RV2411-1FA20** | |
| 6.3 | 4.5 ... 6.3 | 130 | 100 | **3RV2411-1GA10** | | **3RV2411-1GA20** | |
| 8 | 5.5 ... 8 | 163 | 100 | **3RV2411-1HA10** | | **3RV2411-1HA20** | |
| 10 | 7 ... 10 | 208 | 100 | **3RV2411-1JA10** | | **3RV2411-1JA20** | |
| 12.5 | 9 ... 12.5 | 260 | 100 | **3RV2411-1KA10** | | **3RV2411-1KA20** | |
| 16 | 10 ... 16 | 286 | 55 | **3RV2411-4AA10** | | **3RV2411-4AA20** | |
| ***Without phase asymmetry/failure detection for 1-, 2- and 3-phase loads***[1] | | | | | | | |
| 0.4 | 0.28 ... 0.4 | 8.2 | 100 | -- | | **3RV2411-0EA20-0DA0** | |
| 1.6 | 1.1 ... 1.6 | 33 | 100 | -- | | **3RV2411-1AA20-0DA0** | |
| 2 | 1.4 ... 2 | 42 | 100 | -- | | **3RV2411-1BA20-0DA0** | |
| 2.5 | 1.8 ... 2.5 | 52 | 100 | -- | | **3RV2411-1CA20-0DA0** | |
| 3.2 | 2.2 ... 3.2 | 65 | 100 | -- | | **3RV2411-1DA20-0DA0** | |
| 4 | 2.8 ... 4 | 82 | 100 | -- | | **3RV2411-1EA20-0DA0** | |
| 5 | 3.5 ... 5 | 104 | 100 | -- | | **3RV2411-1FA20-0DA0** | |
| 6.3 | 4.5 ... 6.3 | 130 | 100 | -- | | **3RV2411-1GA20-0DA0** | |
| 8 | 5.5 ... 8 | 163 | 100 | -- | | **3RV2411-1HA20-0DA0** | |
| 10 | 7 ... 10 | 208 | 100 | -- | | **3RV2411-1JA20-0DA0** | |
| ***For special operating conditions down to -50 °C***[2][3] | | | | | | | |
| 2.5 | 1.8 ... 2.5 | 52 | 100 | **3RV2411-1CA10-0BA0** | | -- | |
| 6.3 | 4.5 ... 6.3 | 130 | 100 | **3RV2411-1GA10-0BA0** | | -- | |
| 8 | 5.5 ... 8 | 163 | 100 | **3RV2411-1HA10-0BA0** | | -- | |
| 10 | 7 ... 10 | 208 | 100 | **3RV2411-1JA10-0BA0** | | -- | |
| 16 | 10 ... 16 | 286 | 55 | **3RV2411-4AA10-0BA0** | | -- | |

1) The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

2) The motor starter protectors have IEC approval, but not UL/CSA approval.

3) The 3RV2411-.....-0BA0 motor starter protectors have a mechanical endurance of 500 operating cycles.

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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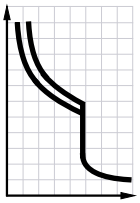
***CLASS 10, without auxiliary switches***

Motor starter protectors for the protection of transformers with high inrush current

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV2421-..A10,
3RV2421-4BA10-0BA0,
32 A

3RV2421-4.A20;
3RV2421-4.A20-0DA0,
16 and 20 A

| Rated current | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| $I_n$ | | $I >$ | $I_{cu}$ | Article No. | Price per PU | Article No. | Price per PU |
| A | A | A | kA | | | | |
| **Size S0** | | | | | | | |
| 0.16 | 0.11 ... 0.16 | 3.3 | 100 | **3RV2421-0AA10** | | -- | |
| 0.2 | 0.14 ... 0.2 | 4.2 | 100 | **3RV2421-0BA10** | | -- | |
| 0.25 | 0.18 ... 0.25 | 5.2 | 100 | **3RV2421-0CA10** | | -- | |
| 0.32 | 0.22 ... 0.32 | 6.5 | 100 | **3RV2421-0DA10** | | -- | |
| 0.4 | 0.28 ... 0.4 | 8.2 | 100 | **3RV2421-0EA10** | | -- | |
| 0.5 | 0.35 ... 0.5 | 10 | 100 | **3RV2421-0FA10** | | -- | |
| 0.63 | 0.45 ... 0.63 | 13 | 100 | **3RV2421-0GA10** | | -- | |
| 0.8 | 0.55 ... 0.8 | 16 | 100 | **3RV2421-0HA10** | | -- | |
| 1 | 0.7 ... 1 | 21 | 100 | **3RV2421-0JA10** | | -- | |
| 1.25 | 0.9 ... 1.25 | 26 | 100 | **3RV2421-0KA10** | | -- | |
| 1.6 | 1.1 ... 1.6 | 33 | 100 | **3RV2421-1AA10** | | -- | |
| 2 | 1.4 ... 2 | 42 | 100 | **3RV2421-1BA10** | | -- | |
| 2.5 | 1.8 ... 2.5 | 52 | 100 | **3RV2421-1CA10** | | -- | |
| 3.2 | 2.2 ... 3.2 | 65 | 100 | **3RV2421-1DA10** | | -- | |
| 4 | 2.8 ... 4 | 82 | 100 | **3RV2421-1EA10** | | -- | |
| 5 | 3.5 ... 5 | 104 | 100 | **3RV2421-1FA10** | | -- | |
| 6.3 | 4.5 ... 6.3 | 130 | 100 | **3RV2421-1GA10** | | -- | |
| 8 | 5.5 ... 8 | 163 | 100 | **3RV2421-1HA10** | | -- | |
| 10 | 7 ... 10 | 208 | 100 | **3RV2421-1JA10** | | -- | |
| 12.5 | 9 ... 12.5 | 260 | 100 | **3RV2421-1KA10** | | -- | |
| 16 | 10 ... 16 | 286 | 55 | **3RV2421-4AA10** | | **3RV2421-4AA20** | |
| 20 | 13 ... 20 | 325 | 55 | **3RV2421-4BA10** | | **3RV2421-4BA20** | |
| 22 | 16 ... 22 | 364 | 55 | **3RV2421-4CA10** | | **3RV2421-4CA20** | |
| 25 | 18 ... 25 | 400 | 55 | **3RV2421-4DA10** | | **3RV2421-4DA20** | |
| ***Without phase asymmetry/failure detection for 1-, 2- and 3-phase loads***[1] | | | | | | | |
| 16 | 10 ... 16 | 286 | 55 | -- | | **3RV2421-4AA20-0DA0** | |
| 20 | 13 ... 20 | 325 | 55 | -- | | **3RV2421-4BA20-0DA0** | |
| ***For special operating conditions down to -50 °C***[2][3] | | | | | | | |
| 20 | 13 ... 20 | 325 | 55 | **3RV2421-4BA10-0BA0** | | -- | |

[1] The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

[2] The motor starter protectors have IEC approval, but not UL/CSA approval.

[3] The 3RV2431-.....-0BA0 motor starter protectors have a mechanical endurance of 250 operating cycles.

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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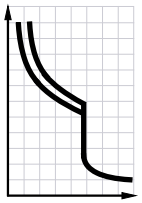
## For transformer protection

***CLASS 10, without auxiliary switches***

Motor starter protectors for the protection of transformers with high inrush current

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV2431-4.A10,
14 to 40 A;
3RV2431-4EA10-0BA0,
32 A

3RV2431-4.A10,
45 to 65 A

| Rated current | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| $I_n$ | | $I >$ | $I_{cu}$ | Article No. | Price per PU | Article No. | Price per PU |
| A | A | A | kA | | | | |
| **Size S2** | | | | | | | |
| 14 | 9.5 ... 14 | 328 | 65 | **3RV2431-4SA10** | | -- | |
| 17 | 12 ... 17 | 410 | 65 | **3RV2431-4TA10** | | -- | |
| 20 | 14 ... 20 | 410 | 65 | **3RV2431-4BA10** | | -- | |
| 25 | 18 ... 25 | 512 | 65 | **3RV2431-4DA10** | | -- | |
| 32 | 22 ... 32 | 656 | 65 | **3RV2431-4EA10** | | -- | |
| 36 | 28 ... 36 | 820 | 65 | **3RV2431-4PA10** | | -- | |
| 40 | 32 ... 40 | 820 | 65 | **3RV2431-4UA10** | | -- | |
| 45 | 35 ... 45 | 922 | 65 | **3RV2431-4VA10** | | -- | |
| 52 | 42 ... 52 | 1 025 | 65 | **3RV2431-4WA10** | | -- | |
| 59 | 49 ... 59 | 1 040 | 65 | **3RV2431-4XA10** | | -- | |
| 65 | 54 ... 65 | 1 040 | 65 | **3RV2431-4JA10** | | -- | |
| ***For special operating conditions down to -50 °C*** [1)2)] | | | | | | | |
| 32 | 22 ... 32 | 656 | 65 | **3RV2431-4EA10-0BA0** | | -- | |

1) The motor starter protectors do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

2) The 3RV2431-.....-0BA0 motor starter protectors have a mechanical endurance of 250 operating cycles.

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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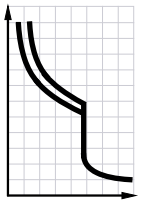
***CLASS 10, with transverse auxiliary switch (1 NO + 1 NC)***

Motor starter protectors for the protection of transformers with high inrush current



3RV2411-..A15

3RV2421-4.A15

| Rated current | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | **Screw terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| $I_n$ | | $I >$ | $I_{cu}$ | Article No. Price per PU | | | |
| A | A | A | kA | | | | |
| **Size S00** | | | | | | | |
| 0.16 | 0.11 ... 0.16 | 3.3 | 100 | **3RV2411-0AA15** | 1 | 1 unit | 41E |
| 0.2 | 0.14 ... 0.2 | 4.2 | 100 | **3RV2411-0BA15** | 1 | 1 unit | 41E |
| 0.25 | 0.18 ... 0.25 | 5.2 | 100 | **3RV2411-0CA15** | 1 | 1 unit | 41E |
| 0.32 | 0.22 ... 0.32 | 6.5 | 100 | **3RV2411-0DA15** | 1 | 1 unit | 41E |
| 0.4 | 0.28 ... 0.4 | 8.2 | 100 | **3RV2411-0EA15** | 1 | 1 unit | 41E |
| 0.5 | 0.35 ... 0.5 | 10 | 100 | **3RV2411-0FA15** | 1 | 1 unit | 41E |
| 0.63 | 0.45 ... 0.63 | 13 | 100 | **3RV2411-0GA15** | 1 | 1 unit | 41E |
| 0.8 | 0.55 ... 0.8 | 16 | 100 | **3RV2411-0HA15** | 1 | 1 unit | 41E |
| 1 | 0.7 ... 1 | 21 | 100 | **3RV2411-0JA15** | 1 | 1 unit | 41E |
| 1.25 | 0.9 ... 1.25 | 26 | 100 | **3RV2411-0KA15** | 1 | 1 unit | 41E |
| 1.6 | 1.1 ... 1.6 | 33 | 100 | **3RV2411-1AA15** | 1 | 1 unit | 41E |
| 2 | 1.4 ... 2 | 42 | 100 | **3RV2411-1BA15** | 1 | 1 unit | 41E |
| 2.5 | 1.8 ... 2.5 | 52 | 100 | **3RV2411-1CA15** | 1 | 1 unit | 41E |
| 3.2 | 2.2 ... 3.2 | 65 | 100 | **3RV2411-1DA15** | 1 | 1 unit | 41E |
| 4 | 2.8 ... 4 | 82 | 100 | **3RV2411-1EA15** | 1 | 1 unit | 41E |
| 5 | 3.5 ... 5 | 104 | 100 | **3RV2411-1FA15** | 1 | 1 unit | 41E |
| 6.3 | 4.5 ... 6.3 | 130 | 100 | **3RV2411-1GA15** | 1 | 1 unit | 41E |
| 8 | 5.5 ... 8 | 163 | 100 | **3RV2411-1HA15** | 1 | 1 unit | 41E |
| 10 | 7 ... 10 | 208 | 100 | **3RV2411-1JA15** | 1 | 1 unit | 41E |
| 12.5 | 9 ... 12.5 | 260 | 100 | **3RV2411-1KA15** | 1 | 1 unit | 41E |
| 16 | 10 ... 16 | 286 | 55 | **3RV2411-4AA15** | 1 | 1 unit | 41E |
| **Size S0** | | | | | | | |
| 16 | 10 ... 16 | 286 | 55 | **3RV2421-4AA15** | 1 | 1 unit | 41E |
| 20 | 13 ... 20 | 325 | 55 | **3RV2421-4BA15** | 1 | 1 unit | 41E |
| 22 | 16 ... 22 | 364 | 55 | **3RV2421-4CA15** | 1 | 1 unit | 41E |
| 25 | 18 ... 25 | 400 | 55 | **3RV2421-4DA15** | 1 | 1 unit | 41E |

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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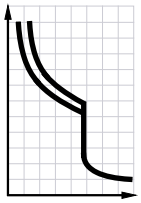
## Selection and ordering data

### *CLASS 10, without auxiliary switches*

The motor starter protectors are suitable for 1-, 2- and 3-phase loads and do not feature phase asymmetry and phase failure detection. They do not have UL/CSA approval and are not certified either according to the European Explosion Protection Directive (ATEX) or according to the International Explosion Protection Standard (IECEx).

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E



3RV2021-..A10-0DA0

3RV2021-1EA20-0DA0

3RV2041-4.A10-0DA0

| Rated current | Suitable for three-phase motors[1] with ▶ | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| $I_n$ | | | $I >$ | $I_{cu}$ | Article No. | Price per PU | Article No. | Price per PU |
| A | kW | A | A | kA | | | | |
| **Size S0** | | | | | | | | |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | **3RV2021-1EA10-0DA0** | | **3RV2021-1EA20-0DA0** | |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | **3RV2021-1GA10-0DA0** | | -- | |
| 8 | 3 | 5.5 ... 8 | 104 | 100 | **3RV2021-1HA10-0DA0** | | -- | |
| 10 | 4 | 7 ... 10 | 130 | 100 | **3RV2021-1JA10-0DA0** | | -- | |
| 12.5 | 5.5 | 9 ... 12.5 | 163 | 100 | **3RV2021-1KA10-0DA0** | | -- | |
| 16 | 7.5 | 10 ... 16 | 208 | 55 | **3RV2021-4AA10-0DA0** | | -- | |
| 20 | 7.5 | 13 ... 20 | 260 | 55 | **3RV2021-4BA10-0DA0** | | -- | |
| 25 | 11 | 18 ... 25 | 325 | 55 | **3RV2021-4DA10-0DA0** | | -- | |
| 32 | 15 | 27 ... 32 | 400 | 55 | **3RV2021-4EA10-0DA0** | | -- | |
| **Size S3** | | | | | | | | |
| 40 | 18.5 | 28 ... 40 | 520 | 65 | **3RV2041-4FA10-0DA0** | | -- | |
| 50 | 22 | 36 ... 50 | 650 | 65 | **3RV2041-4HA10-0DA0** | | -- | |
| 63 | 30 | 45 ... 63 | 819 | 65 | **3RV2041-4JA10-0DA0** | | -- | |
| 84 | 45 | 65 ... 84 | 1 170 | 65 | **3RV2041-4RA10-0DA0** | | -- | |
| 100 | 45, 55 | 80 ... 100 | 1 300 | 65 | **3RV2041-4MA10-0DA0** | | -- | |

[1] Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

Auxiliary switches and other accessories can be ordered separately (see page 7/48 onwards).



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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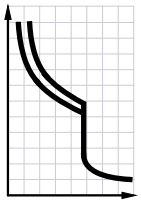
## Selection and ordering data

### *Without auxiliary switches*

Circuit breakers for system protection and non-motor loads according to UL/CSA



3RV2711-..D10

3RV2721-4.D10

3RV2742-5.D10

| Rated current[1] | Thermal overload release (non-adjustable) | Instantaneous electronic release | Short-circuit breaking capacity at 480 Y/277 V AC[2] | 480 V AC | **Screw terminals** | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $I_n$[1] | | $I >$ | $I_{bc}$ | | Article No. | Price per PU | | | |
| A | A | A | kA | kA | | | | | |
| **Size S00** | | | | | | | | | |
| 0.16 | 0.16 | 2.1 | 65 | -- | **3RV2711-0AD10** | | 1 | 1 unit | 41E |
| 0.2 | 0.2 | 2.6 | 65 | -- | **3RV2711-0BD10** | | 1 | 1 unit | 41E |
| 0.25 | 0.25 | 3.3 | 65 | -- | **3RV2711-0CD10** | | 1 | 1 unit | 41E |
| 0.32 | 0.32 | 4.2 | 65 | -- | **3RV2711-0DD10** | | 1 | 1 unit | 41E |
| 0.4 | 0.4 | 5.2 | 65 | -- | **3RV2711-0ED10** | | 1 | 1 unit | 41E |
| 0.5 | 0.5 | 6.5 | 65 | -- | **3RV2711-0FD10** | | 1 | 1 unit | 41E |
| 0.63 | 0.63 | 8.2 | 65 | -- | **3RV2711-0GD10** | | 1 | 1 unit | 41E |
| 0.8 | 0.8 | 10 | 65 | -- | **3RV2711-0HD10** | | 1 | 1 unit | 41E |
| 1 | 1 | 13 | 65 | -- | **3RV2711-0JD10** | | 1 | 1 unit | 41E |
| 1.25 | 1.25 | 16 | 65 | -- | **3RV2711-0KD10** | | 1 | 1 unit | 41E |
| 1.6 | 1.6 | 21 | 65 | -- | **3RV2711-1AD10** | | 1 | 1 unit | 41E |
| 2 | 2 | 26 | 65 | -- | **3RV2711-1BD10** | | 1 | 1 unit | 41E |
| 2.5 | 2.5 | 33 | 65 | -- | **3RV2711-1CD10** | | 1 | 1 unit | 41E |
| 3.2 | 3.2 | 42 | 65 | -- | **3RV2711-1DD10** | | 1 | 1 unit | 41E |
| 4 | 4 | 52 | 65 | -- | **3RV2711-1ED10** | | 1 | 1 unit | 41E |
| 5 | 5 | 65 | 65 | -- | **3RV2711-1FD10** | | 1 | 1 unit | 41E |
| 6.3 | 6.3 | 82 | 65 | -- | **3RV2711-1GD10** | | 1 | 1 unit | 41E |
| 8 | 8 | 104 | 65 | -- | **3RV2711-1HD10** | | 1 | 1 unit | 41E |
| 10 | 10 | 130 | 65 | -- | **3RV2711-1JD10** | | 1 | 1 unit | 41E |
| 12.5 | 12.5 | 163 | 65 | -- | **3RV2711-1KD10** | | 1 | 1 unit | 41E |
| 15 | 15 | 208 | 65 | -- | **3RV2711-4AD10** | | 1 | 1 unit | 41E |
| **Size S0** | | | | | | | | | |
| 20 | 20 | 260 | 50 | -- | **3RV2721-4BD10** | | 1 | 1 unit | 41E |
| 22 | 22 | 286 | 50 | -- | **3RV2721-4CD10** | | 1 | 1 unit | 41E |
| **Size S3[3]** | | | | | | | | | |
| 10 | 10 | 150 | 65 | 65 | **3RV2742-5AD10** | | 1 | 1 unit | 41E |
| 15 | 15 | 225 | 65 | 65 | **3RV2742-5BD10** | | 1 | 1 unit | 41E |
| 20 | 20 | 260 | 65 | 65 | **3RV2742-5CD10** | | 1 | 1 unit | 41E |
| 25 | 25 | 325 | 65 | 65 | **3RV2742-5DD10** | | 1 | 1 unit | 41E |
| 30 | 30 | 390 | 65 | 65 | **3RV2742-5ED10** | | 1 | 1 unit | 41E |
| 35 | 35 | 455 | 65 | -- | **3RV2742-5FD10** | | 1 | 1 unit | 41E |
| 40 | 40 | 520 | 65 | -- | **3RV2742-5GD10** | | 1 | 1 unit | 41E |
| 45 | 45 | 585 | 65 | -- | **3RV2742-5HD10** | | 1 | 1 unit | 41E |
| 50 | 50 | 650 | 65 | -- | **3RV2742-5JD10** | | 1 | 1 unit | 41E |
| 60 | 60 | 780 | 65 | -- | **3RV2742-5LD10** | | 1 | 1 unit | 41E |
| 70 | 70 | 910 | 65 | -- | **3RV2742-5QD10** | | 1 | 1 unit | 41E |

1) Rated value 100% according to UL 489 and IEC 60947-2 ("100% rated breaker").

2) Values for 600 Y/347 V AC, see page 7/17.

3) Transverse auxiliary switches cannot be used for 3RV2742.

Lateral and transverse auxiliary switches can be ordered separately (see from page 7/48 onwards).

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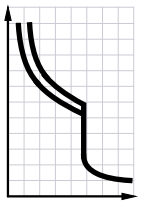
## For transformer protection according to UL 489/CSA C22.2 No. 5

### Selection and ordering data

***Without auxiliary switches***

Circuit breakers for system and transformer protection according to UL/CSA, specially designed for transformers with high inrush current



3RV2811-..D10

3RV2821-4.D10

| Rated current[1] | Thermal overload release (non-adjustable) | Instantaneous electronic release | Short-circuit breaking capacity at 480 Y/277 V AC[2] | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| $I_n$[1] | | $I >$ | $I_{bc}$ | Article No. | Price per PU | | | |
| A | A | A | kA | | | | | |
| **Size S00** | | | | | | | | |
| 0.16 | 0.16 | 3.3 | 65 | **3RV2811-0AD10** | | 1 | 1 unit | 41E |
| 0.2 | 0.2 | 4.2 | 65 | **3RV2811-0BD10** | | 1 | 1 unit | 41E |
| 0.25 | 0.25 | 5.2 | 65 | **3RV2811-0CD10** | | 1 | 1 unit | 41E |
| 0.32 | 0.32 | 6.5 | 65 | **3RV2811-0DD10** | | 1 | 1 unit | 41E |
| 0.4 | 0.4 | 8.2 | 65 | **3RV2811-0ED10** | | 1 | 1 unit | 41E |
| 0.5 | 0.5 | 10 | 65 | **3RV2811-0FD10** | | 1 | 1 unit | 41E |
| 0.63 | 0.63 | 13 | 65 | **3RV2811-0GD10** | | 1 | 1 unit | 41E |
| 0.8 | 0.8 | 16 | 65 | **3RV2811-0HD10** | | 1 | 1 unit | 41E |
| 1 | 1 | 21 | 65 | **3RV2811-0JD10** | | 1 | 1 unit | 41E |
| 1.25 | 1.25 | 26 | 65 | **3RV2811-0KD10** | | 1 | 1 unit | 41E |
| 1.6 | 1.6 | 33 | 65 | **3RV2811-1AD10** | | 1 | 1 unit | 41E |
| 2 | 2 | 42 | 65 | **3RV2811-1BD10** | | 1 | 1 unit | 41E |
| 2.5 | 2.5 | 52 | 65 | **3RV2811-1CD10** | | 1 | 1 unit | 41E |
| 3.2 | 3.2 | 65 | 65 | **3RV2811-1DD10** | | 1 | 1 unit | 41E |
| 4 | 4 | 82 | 65 | **3RV2811-1ED10** | | 1 | 1 unit | 41E |
| 5 | 5 | 104 | 65 | **3RV2811-1FD10** | | 1 | 1 unit | 41E |
| 6.3 | 6.3 | 130 | 65 | **3RV2811-1GD10** | | 1 | 1 unit | 41E |
| 8 | 8 | 163 | 65 | **3RV2811-1HD10** | | 1 | 1 unit | 41E |
| 10 | 10 | 208 | 65 | **3RV2811-1JD10** | | 1 | 1 unit | 41E |
| 12.5 | 12.5 | 260 | 65 | **3RV2811-1KD10** | | 1 | 1 unit | 41E |
| 15 | 15 | 286 | 65 | **3RV2811-4AD10** | | 1 | 1 unit | 41E |
| **Size S0** | | | | | | | | |
| 20 | 20 | 325 | 50 | **3RV2821-4BD10** | | 1 | 1 unit | 41E |
| 22 | 22 | 364 | 50 | **3RV2821-4CD10** | | 1 | 1 unit | 41E |

[1] Rated value 100% according to UL 489 and IEC 60947-2 ("100% rated breaker").

[2] Values for 600 Y/347 V AC, see page 7/17.

Lateral and transverse auxiliary switches can be ordered separately (see from page 7/48 onwards).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

### *Mounting location and function*

The 3RV2 motor starter protectors/circuit breakers have three main contact elements. In order to achieve maximum flexibility, auxiliary switches, signaling switches, auxiliary releases and isolator modules can be supplied separately.

These components are easily fitted to the switches without the use of any tools according to requirements.

Overview graphic, see page 7/6.

| | | |
|---|---|---|
| **Front side**<br>Notes:<br>• A maximum of four auxiliary contacts with auxiliary switches can be mounted on each motor starter protector/circuit breaker.<br>• Transverse auxiliary switches cannot be used for circuit breaker 3RV2742 (size S3). | **Transverse auxiliary switches, solid-state compatible transverse auxiliary switches**<br>1 NO + 1 NC<br>or<br>2 NO<br>or<br>1 CO | An auxiliary switch can be inserted transversely on the front. The overall width of the motor starter protectors/circuit breakers remains unchanged. |
| **Left-hand side**<br>Notes:<br>• A maximum of four auxiliary contacts with auxiliary switches can be mounted on each motor starter protector/circuit breaker.<br>• Lateral auxiliary switches (two contacts) and signaling switches can be mounted separately or together.<br>• Signaling switches cannot be used for 3RV1011, 3RV27 and 3RV28 motor starter protectors/circuit breakers.<br>• Only lateral auxiliary switches can be used for 3RV2742 (size S3). | **Lateral auxiliary switches (two contacts)**<br>1 NO + 1 NC<br>or<br>2 NO<br>or<br>2 NC | One of the three lateral auxiliary switches can be mounted on the left side per motor starter protector/circuit breaker. The contacts of the auxiliary switch close and open together with the main contacts of the motor starter protector/circuit breaker.<br>The width of the lateral auxiliary switch with two contacts is 9 mm. |
| | **Lateral auxiliary switches (four contacts)**<br>2 NO + 2 NC | One lateral auxiliary switch with four contacts can be mounted on the left side per motor starter protector/circuit breaker. The contacts of the auxiliary switch close and open together with the main contacts of the motor starter protector/circuit breaker.<br>The width of the lateral auxiliary switch with four contacts is 18 mm. |
| | **Signaling switches**<br>Tripping 1 NO + 1 NC<br>Short circuit 1 NO + 1 NC | One signaling switch can be mounted on the left side of each motor starter protector.<br>The signaling switch has two contact systems.<br>One contact system always signals tripping irrespective of whether this was caused by a short circuit, an overload or an auxiliary release. The other contact system only switches in the event of a short circuit. There is no signaling as a result of switching off with the actuator.<br>In order to be able to switch on the motor starter protector again after a short circuit, the signaling switch must be reset manually after the error cause has been eliminated.<br>The width of the signaling switch is 18 mm. |
| **Right-hand side**<br>Notes:<br>• One auxiliary release can be mounted per motor starter protector/circuit breaker.<br>• Accessories cannot be mounted on the right-hand side of the 3RV21 motor starter protectors for motor protection with overload relay function. | **Auxiliary releases** | |
| | Shunt releases | For remote-controlled tripping of the motor starter protector/circuit breaker. The release coil should only be energized for short periods (see circuit diagrams). |
| | or | |
| | Undervoltage releases | Trips the motor starter protector/circuit breaker when the voltage is interrupted and prevents the motor from being restarted accidentally when the voltage is restored. Used for remote-controlled tripping of the motor starter protector/circuit breaker.<br>Particularly suitable for EMERGENCY OFF disconnection by way of corresponding EMERGENCY OFF pushbuttons according to IEC 60204-1. |
| | or | |
| | Undervoltage releases with leading auxiliary contacts 2 NO<br>Own version for 3RV1011 | Function and use as for the undervoltage release without leading auxiliary contacts, but with the following additional function: the auxiliary contacts will open in switch position OFF to deenergize the coil of the undervoltage release, thus interrupting energy consumption. In the "tripped" position, these auxiliary contacts are not guaranteed to open. The leading contacts permit the motor starter protector/circuit breaker to reclose.<br>The width of the auxiliary release is 18 mm. |
| **Top**<br>Notes:<br>• Isolator modules cannot be used for 3RV1011, 3RV27 and 3RV28 motor starter protectors/circuit breakers.<br>• The isolator module for size S2 can be used only with 3RV2 motor starter protectors/circuit breakers up to max. 65 A.<br>• The isolator module cannot be used with the transverse auxiliary switch. | **Isolator modules** | Isolator modules can be mounted to the upper connection side of the motor starter protectors.<br>The supply cable is connected to the motor starter protector through the isolator module.<br>The plug can only be unplugged when the motor starter protector is open and isolates all 3 poles of the motor starter protector from the network. The shock-protected isolation point is clearly visible and secured with a padlock to prevent reinsertion of the plug. |

For a complete overview of which accessories can be used for the various motor starter protectors/circuit breakers, see page 7/2.

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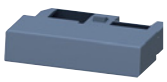
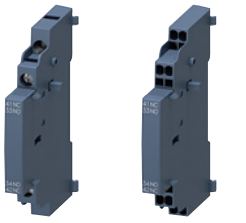
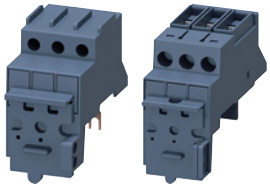
## Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit (unless otherwise specified)
PG = 41E

| | Version | For motor starter protectors/ circuit breakers | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|
| | | Size | Article No. | Price per PU | Article No. | Price per PU |
| **Auxiliary switches**[1] | | | | | | |
| 3RV2901-1E | **Transverse auxiliary switches**[2] For front mounting | | | | | |
| | 1 CO | S00 ... S3 | **3RV2901-1D** | | -- | |
| | 1 NO + 1 NC | | **3RV2901-1E** | | **3RV2901-2E** | |
| | 2 NO | | **3RV2901-1F** | | **3RV2901-2F** | |
| 3RV2901-2E | **Solid-state compatible transverse auxiliary switches**[2] For mounting on the front, for operation in dusty atmosphere and in solid-state circuits with low operating currents | | | | | |
| 3RV2901-1G | 1 CO | S00 ... S3 | **3RV2901-1G** | | -- | |
|  3RV2901-0H | **Covers for transverse auxiliary switches** (PS* = 10 units) | S00 ... S3 | **3RV2901-0H** | | -- | |
|  3RV2901-1A 3RV2901-2A | **Lateral auxiliary switches** For mounting on the left | | | | | |
| | 1 NO + 1 NC | S00 ... S3 | **3RV2901-1A** | | **3RV2901-2A** | |
| | 2 NO | | **3RV2901-1B** | | **3RV2901-2B** | |
| | 2 NC | | **3RV2901-1C** | | **3RV2901-2C** | |
| | 2 NO + 2 NC | | **3RV2901-1J** | | -- | |
| **Signaling switches**[3] | | | | | | |
| 3RV2921-1M 3RV2921-2M | **Signaling switches** One signaling switch can be mounted on the left per motor starter protector. Separate tripped and short-circuit alarms, 1 NO + 1 NC each | S00[5] ... S3 | **3RV2921-1M** | | **3RV2921-2M** | |
| **Isolator modules**[3][4] | | | | | | |
|  3RV2928-1A 3RV2938-1A | **Isolator modules** Visible isolating distance for isolating individual motor starter protectors from the network, lockable in disconnected position | S00[5], S0 | **3RV2928-1A** | | -- | |
| | | S2 | **3RV2938-1A** | | -- | |

1) Each motor starter protector/circuit breaker can be fitted with one transverse and one lateral auxiliary switch. The lateral auxiliary switch with 2 NO + 2 NC is used without a transverse auxiliary switch.
2) Not for 3RV2742 circuit breakers.
3) This accessory cannot be used for the 3RV27 and 3RV28 circuit breakers (sizes S00, S0, S3).
4) The isolator module for size S2 can be used only with 3RV2 motor starter protectors/circuit breakers up to max. 65 A. Similarly, it cannot be used with the transverse auxiliary switch
5) Not for 3RV1011 motor starter protectors.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E

3RV2902-1AV0

3RV2902-2AV0

3RV2922-1CP0

3RV2902-2DB0

| Rated control supply voltage $U_s$ | | | | | For motor starter protectors/ circuit breakers | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | AC 60 Hz | AC 50/60 Hz 100% ON period[1] | AC/DC 50/60 Hz, DC 5 s ON period[2] | DC | | Article No. | Price per PU | Article No. | Price per PU |
| V | V | V | V | V | Size | | | | |
| **Auxiliary releases[3]** | | | | | | | | | |
| **Undervoltage releases** | | | | | | | | | |
| -- | -- | -- | -- | 24 | S00 ... S3 | **3RV2902-1AB4** | | **--** | |
| 24 | 24 | -- | -- | -- | S00 ... S3 | **3RV2902-1AB0** | | **--** | |
| 110 | 120 | -- | -- | -- | S00 ... S3 | **3RV2902-1AF0** | | **--** | |
| -- | 208 | -- | -- | -- | S00 ... S3 | **3RV2902-1AM1** | | **--** | |
| 230 | 240 | -- | -- | -- | S00 ... S3 | **3RV2902-1AP0** | | **3RV2902-2AP0** | |
| 400 | 440 | -- | -- | -- | S00 ... S3 | **3RV2902-1AV0** | | **3RV2902-2AV0** | |
| 415 | 480 | -- | -- | -- | S00 ... S3 | **3RV2902-1AV1** | | **--** | |
| 500 | 600 | -- | -- | -- | S00 ... S3 | **3RV2902-1AS0** | | **--** | |
| **Undervoltage releases with leading auxiliary contacts 2 NO** | | | | | | | | | |
| 24 | 24 | -- | -- | -- | S00[4] ... S3 | **3RV2922-1CB0** | | **--** | |
| 230 | 240 | -- | -- | -- | S00[4] ... S3 | **3RV2922-1CP0** | | **3RV2922-2CP0** | |
| 400 | 440 | -- | -- | -- | S00[4] ... S3 | **3RV2922-1CV0** | | **3RV2922-2CV0** | |
| 415 | 480 | -- | -- | -- | S00[4] ... S3 | **3RV2922-1CV1** | | **3RV2922-2CV1** | |
| **Shunt releases** | | | | | | | | | |
| -- | -- | 20 ... 24 | 20 ... 70 | -- | S00 ... S3 | **3RV2902-1DB0** | | **3RV2902-2DB0** | |
| -- | -- | 90 ... 110 | 70 ... 190 | -- | S00 ... S3 | **3RV2902-1DF0** | | **3RV2902-2DF0** | |
| -- | -- | 210 ... 240 | 190 ... 330 | -- | S00 ... S3 | **3RV2902-1DP0** | | **3RV2902-2DP0** | |
| -- | -- | 350 ... 415 | 330 ... 500 | -- | S00 ... S3 | **3RV2902-1DV0** | | **--** | |
| -- | -- | 500 | 500 | -- | S00 ... S3 | **3RV2902-1DS0** | | **--** | |

1) The voltage range is valid for 100% (infinite) ON period. The response voltage lies at 0.9 of the lower limit of the voltage range.

2) The voltage range is valid for 5 s ON period at 50/60 Hz AC and DC. The response voltage lies at 0.85 of the lower limit of the voltage range.

3) One auxiliary release can be mounted on the right per motor starter protector/circuit breaker (does not apply to 3RV21 motor starter protectors/circuit breakers with overload relay function).

4) Not for 3RV1011 motor starter protectors.

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## Overview

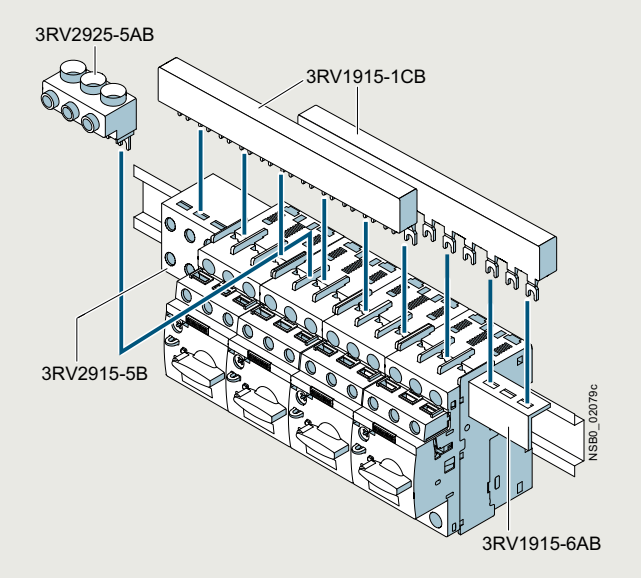
### *Insulated 3-phase busbar system*

3-phase busbar systems provide an easy, time-saving and clearly arranged means of feeding 3RV2 motor starter protectors/circuit breakers with screw terminals. Different versions are available for sizes S00 to S2 and can be used for the different types of motor starter protectors/circuit breakers (size S0 up to 32 A).

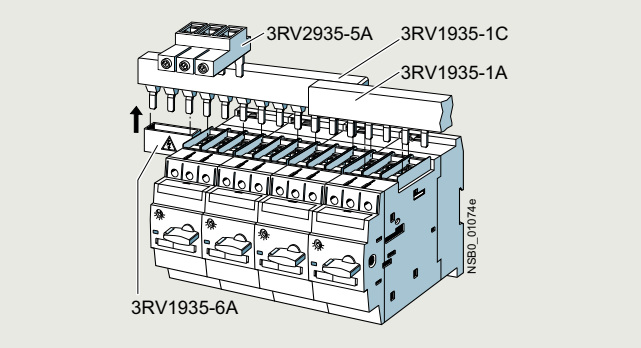
The 3RV1915 3-phase busbar systems are generally unsuitable for the 3RV21 motor starter protectors with sizes S00 and S0 for motor protection with overload relay function.

The busbars are suitable for between two and five motor starter protectors/circuit breakers. However, any kind of extension is possible by clamping the connection tags of an additional busbar (rotated by 180°) underneath the terminals of the respective last motor starter protector/circuit breaker.

A combination of motor starter protectors/circuit breakers of size S00 and S0 is possible. The motor starter protectors/ circuit breakers are supplied by appropriate infeed terminals.




SIRIUS 3-phase busbar system size S00/S0




SIRIUS 3-phase busbar system size S2

The 3-phase busbar systems are finger-safe. They are designed for any short-circuit stress which can occur at the output side of connected motor starter protectors/circuit breakers.

The 3-phase busbar systems can also be used to construct "Starters (Type E)" according to UL/CSA and for 3RV27 and 3RV28 circuit breakers according to UL 489. However, special infeed terminals, 3RV2925-5EB for sizes S00/S0 and 3RV2935-5E for size S2, must be used for this purpose, see page 7/52.

### *8US busbar adapters for 60 mm systems*

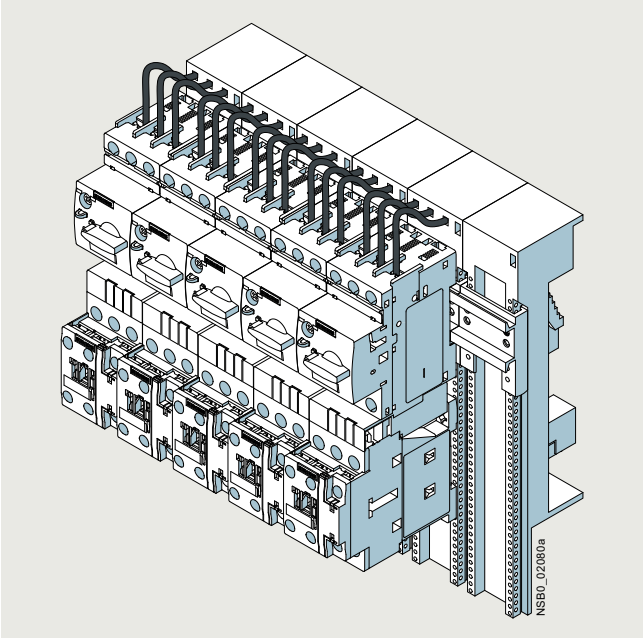
The motor starter protectors/circuit breakers are mounted directly with the aid of busbar adapters on busbar systems with 60 mm center-to-center clearance in order to save space and to reduce infeed times and costs.

Busbar adapters for busbar systems with 60 mm center-to-center clearance are suitable for copper busbars with a width of 12 mm to 30 mm. The busbars can be 5 mm or 10 mm thick.

The motor starter protectors/circuit breakers are snapped onto the adapter and connected on the line side. This prepared unit is then plugged directly onto the busbar system, and is thus connected both mechanically and electrically at the same time.

For the setup of UL feeders (Type E and F), Type E terminal blocks or phase barriers must be fitted to the infeed module on the motor starter protector (see from page 7/57).

For further busbar adapters for snap-mounting direct-on-line starters and reversing starters as well as additional accessories such as line terminals and outgoing terminals, flat copper profile, etc., see Catalog LV 10.




SIRIUS load feeders with busbar adapters snapped onto busbars

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## Selection and ordering data

### 3-phase busbars

| Modular spacing | Number of motor starter protectors that can be connected: without lateral accessories | with lateral auxiliary switch | incl. auxiliary release | Rated current $I_n$ at 690 V | For motor starter protectors/ circuit breakers | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | | | | A | Size | | | | | |
| For feeding several motor starter protectors with screw terminals, mounted side by side on DIN rails, insulated, with touch protection | | | | | | | | | | |
| 45[1)2)] | 2 | -- | -- | 63 | S00, S0[3)] | **3RV1915-1AB** | | 1 | 1 unit | 41E |
| | 3 | -- | -- | 63 | S00, S0[3)] | **3RV1915-1BB** | | 1 | 1 unit | 41E |
| | 4 | -- | -- | 63 | S00, S0[3)] | **3RV1915-1CB** | | 1 | 1 unit | 41E |
| | 5 | -- | -- | 63 | S00, S0[3)] | **3RV1915-1DB** | | 1 | 1 unit | 41E |
| 55[1)4)] | -- | 2 | -- | 63 | S00, S0[3)] | **3RV1915-2AB** | | 1 | 1 unit | 41E |
| | -- | 3 | -- | 63 | S00, S0[3)] | **3RV1915-2BB** | | 1 | 1 unit | 41E |
| | -- | 4 | -- | 63 | S00, S0[3)] | **3RV1915-2CB** | | 1 | 1 unit | 41E |
| | -- | 5 | -- | 63 | S00, S0[3)] | **3RV1915-2DB** | | 1 | 1 unit | 41E |
| | 2 | -- | -- | 108 | S2 | **3RV1935-1A** | | 1 | 1 unit | 41E |
| | 3 | -- | -- | 108 | S2 | **3RV1935-1B** | | 1 | 1 unit | 41E |
| | 4 | -- | -- | 108 | S2 | **3RV1935-1C** | | 1 | 1 unit | 41E |
| 63[1)5)] | -- | -- | 2 | 63 | S00, S0[3)] | **3RV1915-3AB** | | 1 | 1 unit | 41E |
| | -- | -- | 4 | 63 | S00, S0[3)] | **3RV1915-3CB** | | 1 | 1 unit | 41E |
| 75[5)] | -- | 2 | 2 | 108 | S2 | **3RV1935-3A** | | 1 | 1 unit | 41E |
| | -- | 3 | 3 | 108 | S2 | **3RV1935-3B** | | 1 | 1 unit | 41E |
| | -- | 4 | 4 | 108 | S2 | **3RV1935-3C** | | 1 | 1 unit | 41E |

3RV1915-1AB

3RV1915-1BB

3RV1915-1CB

3RV1915-1DB

1) Not suitable for 3RV21 motor starter protectors of sizes S00 and S0 with overload relay function.
2) For 3RV2 motor starter protectors without accessories mounted on the side.
3) Approved for motor starter protectors size S0 with $I_n \leq 32$ A.
4) For 3RV2 motor starter protectors with auxiliary switches with 1 NO + 1 NC, 2 NO and 2 NC mounted on the left (9 mm wide).
5) For 3RV20, 3RV21, 3RV23 and 3RV24 motor starter protectors with mounted accessories (18 mm wide). Auxiliary switches with 2 NO + 2 NC or signaling switch (mounted on the left) or with auxiliary release (mounted on the right).

### Connecting pieces for 3-phase busbars

| Version | Modular spacing | For motor starter protectors/ circuit breakers | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | mm | Size | | | | | |
| For connecting 3-phase busbars for 3RV2 motor starter protectors of size S00/S0 (left) to the 3RV1011 motor starter protector (right) | 45 | S00, S0 | **3RV1915-5DB** | | 1 | 1 unit | 41E |

3RV1915-5DB

### 3-phase infeed terminals

| Conductor cross-section: Solid or stranded | Finely stranded with end sleeve | AWG cables, solid or stranded | Tightening torque | For motor starter protectors/ circuit breakers | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| mm² | mm² | AWG | Nm | Size | | | | | |
| **Connection from top** | | | | | | | | | |
| 2.5 … 25 | 4 … 16 | 10 … 4 | 4 | S00[2)], S0 | **3RV1915-5A** | | 1 | 1 unit | 41E |
| 2.5 … 25 | 2.5 … 16 | 10 … 4 | 3 … 4 | S00, S0 | **3RV2925-5AB** | | 1 | 1 unit | 41E |
| 2 x (2.5 … 50)[1)], 1 x (2.5 … 70)[1)] | 2 x (2.5 … 35)[1)], 1 x (2.5 … 50)[1)] | 2 x (10 … 1/0)[1)], 1 x (10 … 2/0)[1)] | 4 … 6 | S2 | **3RV2935-5A** | | 1 | 1 unit | 41E |
| **Connection from below** Terminal is connected in place of a switch, take space requirement into account | | | | | | | | | |
| 2.5 … 25 | 2.5 … 16 | 10 … 4 | Input: 4, output: 2 … 2.5 | S00, S0 | **3RV2915-5B** | | 1 | 1 unit | 41E |

3RV2925-5AB

3RV2935-5A

3RV2915-5B

1) If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.
2) Especially suitable for 3RV1011 motor starter protectors. If the 3RV2 motor starter protector is used, the terminal block extends beyond the device width.

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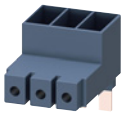
| | Conductor cross-section | | | Tightening torque | For motor starter protectors/ circuit breakers | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Solid or stranded | Finely stranded with end sleeve | AWG cables, solid or stranded | | | | | | | |
| | mm² | mm² | AWG | Nm | Size | | | | | |
| **3-phase infeed terminals for constructing "starters (Type E)"** | | | | | | | | | | |
| 3RV2925-5EB | **Connection from top** | | | | | | | | | |
| | 2.5 … 25 | 2.5 … 16 | 10 ... 4 | 3 ... 4 | S00, S0 | **3RV2925-5EB** | | 1 | 1 unit | 41E |
|  3RV2935-5E | 2 x (2.5 ... 50)[1], 1 x (2.5 ... 70)[1] | 2 x (2.5 ... 35)[1], 1 x (2.5 ... 50)[1] | 2 x (10 ... 1/0)[1], 1 x (10 ... 2/0)[1] | 4 ... 6 | S2 | **3RV2935-5E** | | 1 | 1 unit | 41E |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

| | Version | For motor starter protectors/ circuit breakers | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | | Size | | | | | |
| **Covers for connection tags** | | | | | | | |
| 3RV1935-6A covers mounted on 3RV1915-1CB busbar | Touch protection for empty positions | S00, S0 | **3RV1915-6AB** | | 1 | 10 units | 41E |
| | | S2 | **3RV1935-6A** | | 1 | 5 units | 41E |

7



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## *Busbar adapters*

8US1251-5DS10

8US1251-5DT11

8US1211-4TR00

8US1250-5AS10

8US1250-5AT10

| For motor starter protectors/ circuit breakers | Rated current | Connecting cable | Adapter length | Adapter width | Rated voltage | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| Size | A | AWG | mm | mm | V | | | | | |
| **Busbar adapters for 60 mm systems** | | | | | | | | | | |
| For copper busbars according to DIN 46433<br>Width: 12 mm and 30 mm<br>Thickness: 5 mm and 10 mm<br>and for T and double-T special profiles | | | | | | | | | | |
| • For motor starter protectors/circuit breakers with screw terminals[1] | | | | | | **Screw terminals** | | | | |
| S00[2], S0[3] | 25 | 12 | 200 | 45 | 690 | **8US1251-5DS10** | | 1 | 1 unit | 14O |
| S00[2], S0 | 25 | 12 | 260 | 45 | 690 | **8US1251-5DT10** | | 1 | 1 unit | 14O |
| S0 | 32 | 10 | 200 | 45 | 690 | **8US1251-5NS10** | | 1 | 1 unit | 14O |
| S0[3] | 32 | 10 | 260 | 45 | 690 | **8US1251-5NT10** | | 1 | 1 unit | 14O |
| S2 | 80 | 4 | 200 | 55 | 690 | **8US1261-5MS13** | | 1 | 1 unit | 14O |
| S2 | 80 | 4 | 260 | 55 | 690 | **8US1261-6MT10** | | 1 | 1 unit | 14O |
| S2[4] | 80 | 4 | 260 | 118 | 690 | **8US1211-6MT10** | | 1 | 1 unit | 14O |
| S3 | 100/70[5] | 4 | 215 | 72 | 690/600[5] | **8US1211-4TR00** | | 1 | 1 unit | 14O |
| • For motor starter protectors/circuit breakers with spring-loaded terminals[6] | | | | | | **Spring-loaded terminals** | | | | |
| S00[2], S0[3] | 25 | 12 | 200 | 45 | 690 | **8US1251-5DS11** | | 1 | 1 unit | 14O |
| S00[2], S0[3] | 25 | 12 | 260 | 45 | 690 | **8US1251-5DT11** | | 1 | 1 unit | 14O |
| S0 | 32 | 10 | 200 | 45 | 690 | **8US1251-5NS11** | | 1 | 1 unit | 14O |
| S0[3] | 32 | 10 | 260 | 45 | 690 | **8US1251-5NT11** | | 1 | 1 unit | 14O |
| **Accessories** | | | | | | | | | | |
| **Device holders**<br>For lateral attachment to busbar adapters | --<br>-- | --<br>-- | 200<br>260 | 45<br>45 | --<br>-- | **8US1250-5AS10**<br>**8US1250-5AT10** | | 1<br>1 | 1 unit<br>1 unit | 14O<br>14O |
| **Side modules**<br>For widening busbar adapters | -- | -- | 200 | 9 | -- | **8US1998-2BJ10** | | 1 | 10 units | 14O |
| **Vibration and shock kits**<br>For high vibration and shock loads | | | | | | | | | | |
| S2 | -- | -- | -- | -- | -- | **8US1998-1DA10** | | 1 | 1 unit | 14O |

1) For the setup of UL feeders (Type E and F), Type E terminal blocks or phase barriers (for sizes S00 to S2) must be fitted to the infeed module on the motor starter protector (see from page 7/57).

2) Not for 3RV1011 motor starter protectors.

3) Also approved for 3RV27, 3RV28 circuit breakers according to UL.

4) For the assembly of feeders for reversing starters consisting of a motor starter protector and two contactors.

5) Values according to UL/CSA:
- Rated current: 70 A at 600 V AC
- Short-circuit breaking capacity:
  480 V AC: 65 kA, up to $I_n$ = 30 A,
  480 Y/277 V AC: 65 kA,
  600 Y/347 V AC: 20 kA.

6) It is not possible to set up UL feeders (Type E and F).

For additional busbar adapters and accessories, see Catalog LV 10.

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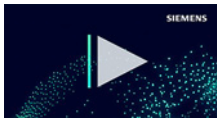
## Overview

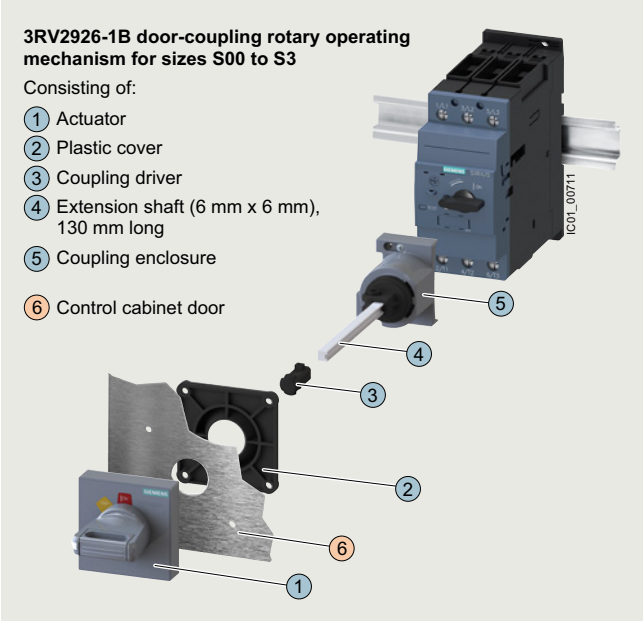
### *Door-coupling rotary operating mechanisms*

Motor starter protectors/circuit breakers with a rotary operating mechanism can be mounted in a control cabinet and operated externally by means of a door-coupling rotary operating mechanism. When the cabinet door with motor starter protector/circuit breaker is closed, the operating mechanism is coupled. When the motor starter protector/circuit breaker closes, the coupling is locked which prevents the door from being opened unintentionally. This interlock can be defeated by the maintenance personnel. In the OFF position, the rotary operating mechanism can be secured against reclosing with up to three padlocks. Inadvertent opening of the door is not possible in this case either.

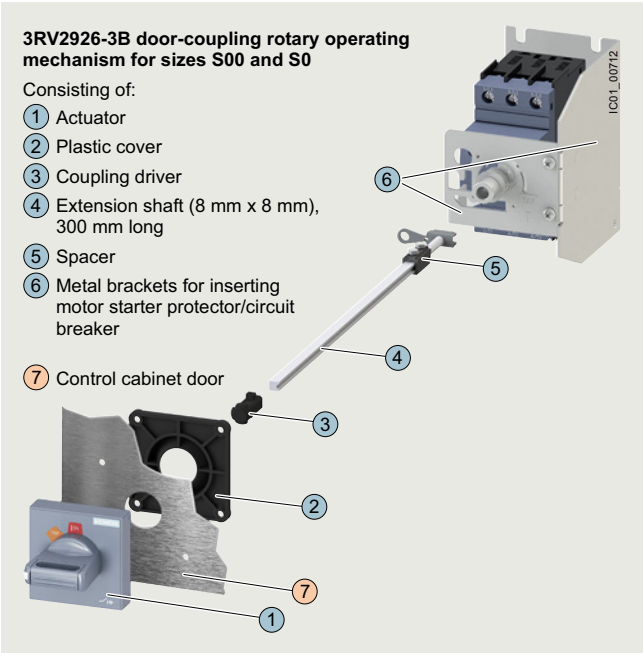
With the optional 3RV2926-.Q tolerance compensation, an offset can be compensated when installing the door-coupling rotary operating mechanism. For this purpose, the standard coupling head on the shaft is removed and replaced by the tolerance compensation.




Video: SIRIUS door-coupling rotary mechanism




SIRIUS 3RV2926-1B door-coupling rotary operating mechanism




SIRIUS 3RV2926-3B door-coupling rotary operating mechanism for harsh conditions

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***Door-coupling rotary operating mechanism for mounting one main switch in size S3 according to UL 508A and NFPA 79***

For the installation of a door-coupling rotary operating mechanism for harsh conditions for a main switch (only possible in size S3) in a UL control cabinet (according to UL 508A and NFPA 79), the standard stipulates a second handle in the control cabinet. With the cabinet door open, it shall only be possible to switch on this supplementary handle by means of a "deliberate action".

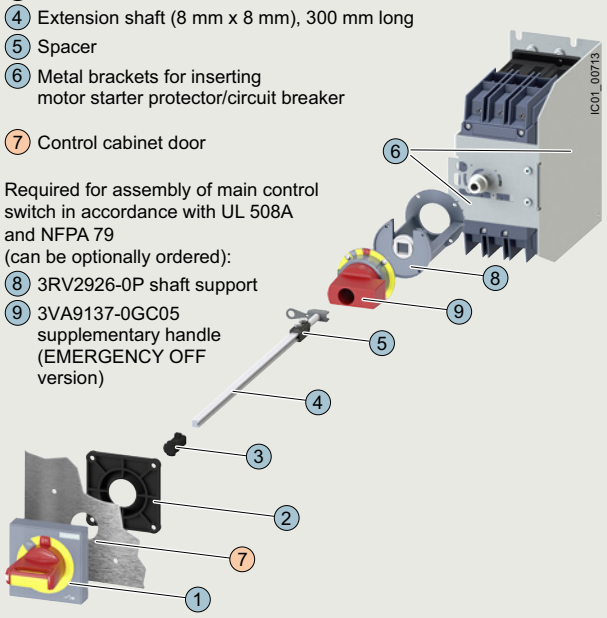
The figure below shows the setup required for this purpose, with the 3RV2946-3C door-coupling rotary operating mechanism for harsh conditions, the 3RV2926-0P shaft support, and the 3VA9137-0GC05 supplementary handle (EMERGENCY OFF version).

To switch on the supplementary handle, the handle must be pressed against a spring in the direction of the mounting plane. This is the required "deliberate action" so that the supplementary handle does not turn empty and the circuit breaker can be closed.

**3RV2946-3C EMERGENCY OFF door-coupling rotary operating mechanism for size S3**

Consisting of:
1. Actuator
2. Plastic cover
3. Coupling driver
4. Extension shaft (8 mm x 8 mm), 300 mm long
5. Spacer
6. Metal brackets for inserting motor starter protector/circuit breaker
7. Control cabinet door

Required for assembly of main control switch in accordance with UL 508A and NFPA 79 (can be optionally ordered):
8. 3RV2926-0P shaft support
9. 3VA9137-0GC05 supplementary handle (EMERGENCY OFF version)




SIRIUS 3RV2946-3C EMERGENCY OFF door-coupling rotary operating mechanism for harsh operating conditions according to UL 508A and NFPA 79 with optional shaft support and supplementary handle (EMERGENCY OFF version)

## Selection and ordering data

| Version | Color of actuator | Version of extension shaft | For motor starter protectors/ circuit breakers | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | mm | Size | | | | | |
| **Door-coupling rotary operating mechanisms** | | | | | | | | |
| 3RV2926-1B | | | | | | | | |
| **Door-coupling rotary operating mechanisms** | Gray | 130 | S00[1] ... S3 | **3RV2926-1B** | | 1 | 1 unit | 41E |
| | | 330 | S00[1] ... S3 | **3RV2926-1K** | | 1 | 1 unit | 41E |
| 3RV2926-1C | | | | | | | | |
| **EMERGENCY OFF door-coupling rotary operating mechanisms** | Red/ yellow | 130 | S00[1] ... S3 | **3RV2926-1C** | | 1 | 1 unit | 41E |
| | | 330 | S00[1] ... S3 | **3RV2926-1L** | | 1 | 1 unit | 41E |
| ***Optional accessories*** | | | | | | | | |
| 3RV2926-0Q | | | | | | | | |
| **Tolerance compensation** | -- | -- | -- | **3RV2926-0Q** | | 1 | 1 unit | 41E |

[1] Not for 3RV1011 motor starter protectors.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories > Rotary operating mechanisms

| Version | Color of actuator | Version of extension shaft | For motor starter protectors/ circuit breakers | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | mm | Size | | | | | |
| **Door-coupling rotary operating mechanisms for harsh conditions** | | | | | | | | |
| 3RV2946-3B | The door-coupling rotary operating mechanisms consist of an actuator, a coupling driver, an extension shaft of 300 mm in length (8 mm x 8 mm), a spacer and two metal brackets, into which the motor starter protector/circuit breaker is inserted.<br>The door-coupling rotary operating mechanisms are designed to degree of protection IP65. For UL/CSA applications, they are tested for enclosure types 1, 3R and 12. The door interlocking reliably prevents opening of the control cabinet door in the ON position of the motor starter protector/circuit breaker. The OFF position can be locked with up to three padlocks.<br>Laterally mountable auxiliary releases and 2-pole auxiliary switches can be used.<br>The door-coupling rotary operating mechanisms thus meet the requirements for isolating functions according to IEC 60947-2.<br>With the optional 3RV2926-2Q tolerance compensation, an offset can be compensated when installing the door-coupling rotary operating mechanism for harsh conditions. | | | | | | | |
| 3RV2946-3C | **Door-coupling rotary operating mechanisms** | Gray | 300 | S00[1], S0 | **3RV2926-3B** | 1 | 1 unit | 41E |
| | | | | S2 | **3RV2936-3B** | 1 | 1 unit | 41E |
| | | | | S3 | **3RV2946-3B** | 1 | 1 unit | 41E |
| | **EMERGENCY OFF door-coupling rotary operating mechanism** | Red/ yellow | 300 | S00[1], S0 | **3RV2926-3C** | 1 | 1 unit | 41E |
| | | | | S2 | **3RV2936-3C** | 1 | 1 unit | 41E |
| | | | | S3 | **3RV2946-3C** | 1 | 1 unit | 41E |
| | ***Optional accessories*** | | | | | | | |
| 3RV2926-2Q | **Tolerance compensation** | -- | -- | S00 ... S3 | **3RV2926-2Q** | 1 | 1 unit | 41E |
| | ***Necessary accessories for mounting one main switch in size S3 according to UL 508A and NFPA 79*** *(see also page 7/55)* | | | | | | | |
| 3RV2926-0P | **Shaft supports** | -- | -- | S00 ... S3 | **3RV2926-0P** | 1 | 1 unit | 41E |
| | **Supplementary handles** | | | | | | | |
| 3VA9137-0GC01 | • Standard | Gray | -- | S3 | **3VA9137-0GC01** | 1 | 1 unit | 12P |
| 3VA9137-0GC05 | • EMERGENCY OFF | Red/ yellow | -- | S3 | **3VA9137-0GC05** | 1 | 1 unit | 12P |

[1] Not for 3RV1011 motor starter protectors.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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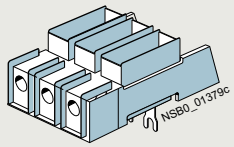
## Overview

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60279172 |

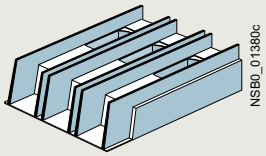
### *Accessories for "Self-Protected Combination Motor Controllers (Type E)" according to UL 508/UL 60947-4-1*

The 3RV20 motor starter protectors with screw terminals are approved according to UL 508/UL 60947-4-1 as "Self-Protected Combination Motor Controllers (Type E)".
The 3RV1011 motor starter protectors do not have this UL approval.

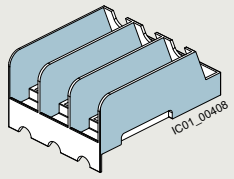
This requires increased clearance and creepage distances (1 inch and 2 inches respectively) at the input side of the device, which are achieved by mounting a terminal block or a phase barrier. No transverse auxiliary switches may be used when using 3RT2946-4GA07 terminal blocks for size S3.




SIRIUS 3RV2928-1H terminal block




SIRIUS 3RT2946-4GA07 terminal block (Type E)




SIRIUS 3RV2928-1K phase barrier

| Motor starter protectors/ circuit breakers | Size | Essential accessories for "Self-Protected Combination Motor Controllers (Type E)" according to UL 508/UL 60947-4-1 |
|---|---|---|
| 3RV201., 3RV202. | S00/S0 | 3RV2928-1H terminal block or 3RV2928-1K phase barrier |
| 3RV2031-4B.1., 3RV2031-4D.1., 3RV2031-4E.1., 3RV2031-4P.1., 3RV2031-4S.1., 3RV2031-4T.1., 3RV2031-4U.1., 3RV2031-4V.1. | S2 | -- |
| 3RV2031-4J.1., 3RV2031-4K.1., 3RV2031-4R.1., 3RV2031-4W.1., 3RV2031-4X.1., 3RV2032 | S2 | 3RV2938-1K phase barrier |
| 3RV204. | S3 | 3RT2946-4GA07 terminal block |

-- No accessories needed

Special 3-phase infeed terminals are required for constructing "Starters (Type E)" with an insulated 3-phase busbar system (see "Busbar accessories", page 7/52).

For the setup of "Starters (Type E)" with 8US busbar adapters, Type E terminal blocks or phase barriers (for sizes S00 to S2) must be fitted to the infeed module on the motor starter protector/circuit breaker, see page 7/60.

The 3RV29 infeed system also enables the assembly of "Starters (Type E)", see page 7/67 onwards.

Note:

According to CSA, these terminal blocks and the phase barriers can be omitted when the device is used as a "Self-Protected Combination Motor Controller (Type E)".

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### *Link modules*

Feeders can be easily assembled from single devices with the help of the link modules. The following table shows the different combination options for devices with screw or spring-loaded terminals.

| Combination devices | 3RV2 motor starter protectors/ circuit breakers<br>Size | 3RT2 contactors; 3RW30, 3RW40 soft starters; 3RF34 solid-state contactors<br>Size | Link modules<br>Screw terminals | <br>Spring-loaded terminals |
|---|---|---|---|---|
| **Link modules for connecting switching devices to 3RV2 motor starter protectors/circuit breakers[1)]** | | | | |
| 3RT2 contactors with AC or DC coil | S00 | S00 | 3RA1921-1DA00 | 3RA2911-2AA00 |
| | S0 | S00 | | -- |
| | S2 | S2 | 3RA2931-1AA00 | -- |
| | S3[2)] | S3[2)] | 3RA1941-1AA00 | -- |
| 3RT2 contactors with AC coil | S00 | S0 | 3RA2921-1AA00 | -- |
| | S0 | S0 | | 3RA2921-2AA00[3)] |
| 3RT2 contactors with DC or AC/DC coil | S00 | S0 | 3RA2921-1BA00 | -- |
| | S0 | S0 | | 3RA2921-2AA00 |
| 3RW30 soft starters | S00 | S00 | 3RA2921-1BA00 | 3RA2911-2GA00 |
| | S0 | S00 | | -- |
| 3RW30/3RW40 soft starters | S00 | S0 | 3RA2921-1BA00 | -- |
| | S0 | S0 | | 3RA2921-2GA00 |
| | S2[4)] | S2[4)] | 3RA2931-1AA00 | -- |
| | S3[5)] | S3[5)] | 3RA1941-1AA00 | -- |
| 3RF34 solid-state contactors | S00/S0 | S00 | 3RA2921-1BA00 | -- |
| **Hybrid link modules for connecting contactors with spring-loaded terminals to 3RV2 motor starter protectors/circuit breakers with screw terminals[6)]** | | | | |
| 3RT2 contactors with AC or DC coil | S00 | S00 | 3RA2911-2FA00 | -- |
| | S0 | S0 | 3RA2921-2FA00 | -- |

-- Version not possible

1) The link modules cannot be used for 3RV2.21-4PA1., 3RV2.21-4FA1., 3RV2.31-4K.1., 3RV2.31-4R.1., 3RV2.32-4K.1., 3RV2.32-4R.1., 3RV27, 3RV28 and 3RV1011 motor starter protectors/circuit breakers.

2) To assemble the feeder between a motor starter protector and a contactor in size S3, the 3RA2942-1AA00 DIN-rail adapter must be used.

3) A spacer for height compensation on AC contactors, size S0, is optionally available, see page 7/61.

4) To assemble the feeder between a motor starter protector and a soft starter in size S2, the 3RA2932-1CA00 DIN-rail adapter must be used.

5) It is only permissible to assemble the feeder between the motor starter protector and the soft starter in size S3 on a mounting plate.

6) The hybrid link modules for motor starter protector to contactor cannot be used for 3RV2.21-4PA1., 3RV2.21-4FA1., 3RV27 and 3RV28 motor starter protectors/circuit breakers. They are suitable only for constructing direct-on-line starters.

Notes:

- Link modules can be used in
  - Size S00: up to max. 16 A
  - Size S0: up to max. 32 A
  - Size S2: up to max. 65 A
- Hybrid link modules can be used in
  - Size S00: up to max. 16 A
  - Size S0: up to max. 32 A

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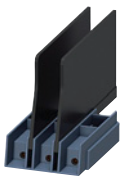
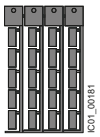
## Selection and ordering data

### *Accessories*

| | Version | For motor starter protectors/ circuit breakers Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Covers** | | | | | | | |
| 3RV2 (size S3) with 3RT1946-4EA1 (below) | **Terminal covers** For cable lug and busbar connection for maintaining the required voltage clearances and as touch protection if box terminal is removed (two units can be mounted per motor starter protector/circuit breaker) | S3 | **3RT1946-4EA1** | | 1 | 1 unit | 41B |
| 3RV2908-0P | **Scale covers** Sealable, for covering the set current scale | 3RV20, 3RV21, 3RV24: S00 ... S3 | **3RV2908-0P** | | 100 | 10 units | 41E |
| 3RT2936-4EA2 | **Covers for devices with screw terminals (box terminals)** | | **Screw terminals** | | | | |
| | Additional touch protection to be fitted at the box terminals (two units required per device) | | | | | | |
| | Main current level | S2 | **3RT2936-4EA2** | | 1 | 1 unit | 41B |
| | | S3 | **3RT2946-4EA2** | | 1 | 1 unit | 41B |
| **Terminal covers for box terminals on 3RV2742 and Type E terminal block 3RT2946-4GA07** | | | | | | | |
| 3RV2948-1LA00 | Additional touch protection to be fitted at the 3RV2742 box terminals (two units required per device) and at 3RT2946-4GA07 terminal block (Type E) | | | | | | |
| | Main current level | S3 | **3RV2948-1LA00** | | 1 | 1 unit | 41E |
| **Phase barrier for constructing limiter combinations of size S3[1)]** | | | | | | | |
|  3RV2948-1K | Infeed to the limiter is always on the side 2T1/4T2/6T3. Use 3RV2948-1K phase barriers on the infeed side. | | | | | | |
| | Main current level | S3 | **3RV2948-1K** | | 1 | 1 unit | 41E |
| **Fixing accessories** | | | | | | | |
| 3RV2928-0B | **Push-in lugs** For screw fixing of the motor starter protector/ circuit breaker onto mounting plates | S00, S0 | **3RV2928-0B** | | 100 | 10 units | 41E |
| | Two units are required for each motor starter protector. | | | | | | |
| **Tools for opening spring-loaded terminals** | | | | | | | |
| 3RA2908-1A | **Screwdrivers** For all SIRIUS devices with spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | S00 ... S3 | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates[1)]** For SIRIUS devices, 20 mm x 7 mm, titanium gray | S00 ... S3 | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | **Adhesive labels** For SIRIUS devices, 19 mm x 6 mm, titanium gray | S00 ... S3 | **3RT2900-1SB60** | | 100 | 3 060 units | 41B |

[1)] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

7

* You can order this quantity or a multiple thereof.
Illustrations are approximate

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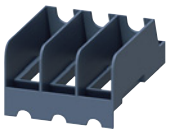
## Accessories > Mounting accessories

| Version | For motor starter protectors/ circuit breakers Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminal blocks and phase barriers for "Self-Protected Combination Motor Controllers (Type E)" according to UL 508/UL 60947-4-1** | | | | | | |
| 3RV2928-1H | | | | | | |
| Note: UL 508/UL 60947-4-1 approval demands 1-inch clearance and 2-inch creepage distances for "Self-Protected Combination Motor Controllers (Type E)". The following terminal blocks or phase barriers must be used for the 3RV20 motor starter protectors with screw terminals. This also applies to construction with the 8US busbar adapter. 3RV20 motor starter protectors with spring-loaded terminals must be assembled with the 3RV29 infeed system for approval as "Self-Protected Combination Motor Controllers (Type E)" according to UL 508/UL 60947-4-1. The 3RV1011 motor starter protectors do not have UL approval as "Starters (Type E)". The terminal block or phase barriers cannot be used in combination with the 3RV19.5 3-phase busbars. For construction with 3-phase busbars, see "Busbar Accessories", from page 7/50 onwards. | | | | | | |
| 3RT2946-4GA07 | | | | | | |
| **Terminal blocks Type E** For increased clearance and creepage distances (1 and 2 inch) | S00[1], S0 | **3RV2928-1H** | 1 | 1 unit | | 41E |
| | S3[2] | **3RT2946-4GA07** | 1 | 1 unit | | 41B |
|  3RV2928-1K | | | | | | |
| **Phase barriers** For increased clearance and creepage distances (1 and 2 inch) | S00[1], S0 | **3RV2928-1K** | 1 | 1 unit | | 41E |
| | S2 | **3RV2938-1K** | 1 | 1 unit | | 41E |
| 3RV2938-1K | | | | | | |
| **Auxiliary conductor terminals, 3-pole** | | | | | | |
| 3RT2946-4F | | | | | | |
| For connection of auxiliary and control cables to the main conductor connections (for one side) | S3 | **3RT2946-4F** | 1 | 1 unit | | 41B |

[1] Not for 3RV1011 motor starter protectors.
[2] Cannot be used on 3RV2.4. motor starter protectors in combination with transverse auxiliary switches.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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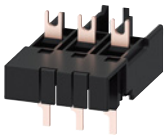
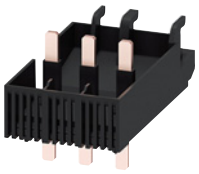
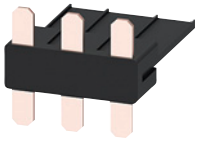
## *Link modules*

| For 3RV2 motor starter protectors/ circuit breakers | For 3RT2 contactors | Actuating voltage of contactor | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Size | Size | | | | | | |
| **Link modules for motor starter protector to contactor[1]** | | | | | | | |
|  3RA2921-1AA00 | For connection between motor starter protector and contactor with screw terminals | | **Screw terminals** | | | | |
| | **Single-unit packaging** | | | | | | |
| S00/S0 | S00 | AC, DC | **3RA1921-1DA00** | | 1 | 1 unit | 41B |
| S00/S0 | S0 | AC | **3RA2921-1AA00** | | 1 | 1 unit | 41B |
| S00/S0 | S0 | DC, AC/DC | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| S2 | S2 | AC, DC, AC/DC | **3RA2931-1AA00** | | 1 | 1 unit | 41B |
| S3 | S3 | AC, DC, AC/DC | **3RA1941-1AA00** | | 1 | 1 unit | 41B |
|  3RA2931-1AA00 | **Multi-unit packaging** | | | | | | |
| S00/S0 | S00 | AC, DC | **3RA1921-1D** | | 1 | 10 units | 41B |
| S00/S0 | S0 | AC | **3RA2921-1A** | | 1 | 10 units | 41B |
| S00/S0 | S0 | DC, AC/DC | **3RA2921-1B** | | 1 | 10 units | 41B |
| S2 | S2 | AC, DC, AC/DC | **3RA2931-1A** | | 1 | 5 units | 41B |
| S3 | S3 | AC, DC, AC/DC | **3RA1941-1A** | | 1 | 5 units | 41B |
|  3RA1941-1AA00 | | | | | | | |
| 3RA2911-2AA00 | For connection between motor starter protector and contactor with spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | **Single-unit packaging** | | | | | | |
| S00 | S00 | AC, DC | **3RA2911-2AA00** | | 1 | 1 unit | 41B |
| S0 | S0 | AC[2], DC, AC/DC | **3RA2921-2AA00** | | 1 | 1 unit | 41B |
| | **Multi-unit packaging** | | | | | | |
| S00 | S00 | AC, DC | **3RA2911-2A** | | 1 | 10 units | 41B |
| S0 | S0 | AC[2], DC, AC/DC | **3RA2921-2A** | | 1 | 10 units | 41B |
| 3RA2911-1CA00 | **Spacers[2]** For height compensation on AC contactors size S0 with spring-loaded terminals | | | | | | |
| S0 | S0 | Single-unit packaging | **3RA2911-1CA00** | | 1 | 1 unit | 41B |
| S0 | S0 | Multi-unit packaging | **3RA2911-1C** | | 1 | 5 units | 41B |

[1] The link modules for motor starter protector to contactor cannot be used for 3RV1011, 3RV2.21-4PA1., 3RV2.21-4FA1., 3RV2.31-4K.1., 3RV2.31-4R.1., 3RV2.32-4K.1., 3RV2.32-4R.1., 3RV27 and 3RV28 motor starter protectors/circuit breakers.

[2] A spacer for height compensation on AC contactors size S0 is optionally available.

Note:

Link modules can be used in

- Size S00: up to max. 16 A
- Size S0: up to max. 32 A
- Size S2: up to max. 65 A

7

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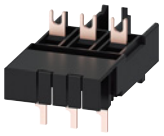
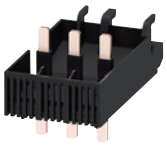
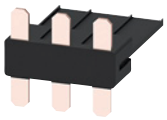
| For 3RV2 motor starter protectors/circuit breakers Size | For 3RW30, 3RW40 soft starters; 3RF34 solid-state contactors Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Link modules for motor starter protector to soft starter[1] and motor starter protector to solid-state contactor[1]** | | | | | | |
| Connection between motor starter protector and soft starter/solid-state contactor with screw terminals | | **Screw terminals** | | | | |
| **Single-unit packaging** | | | | | | |
| S00/S0 | S00/S0 | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| S2[2] | S2[2] | **3RA2931-1AA00** | | 1 | 1 unit | 41B |
| S3[3] | S3[3] | **3RA1941-1AA00** | | 1 | 1 unit | 41B |
| **Multi-unit packaging** | | | | | | |
| S00/S0 | S00/S0 | **3RA2921-1B** | | 1 | 10 units | 41B |
| S2[2] | S2[2] | **3RA2931-1A** | | 1 | 5 units | 41B |
| S3[3] | S3[3] | **3RA1941-1A** | | 1 | 5 units | 41B |
| Connection between motor starter protector and soft starter with spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| **Single-unit packaging** | | | | | | |
| S00 | S00 | **3RA2911-2GA00** | | 1 | 1 unit | 41B |
| S0 | S0 | **3RA2921-2GA00** | | 1 | 1 unit | 41B |


3RA2921-1BA00


3RA2931-1AA00


3RA1941-1A

3RA2911-2GA00

1) The link modules from motor starter protector to soft starter and motor starter protector to solid-state contactor cannot be used for the 3RV1011, 3RV2.21-4PA1., 3RV2.21-4FA1., 3RV2.31-4K.1., 3RV2.31-4R.1., 3RV2.32-4K.1., 3RV2.32-4R.1., 3RV27 and 3RV28 motor starter protectors/circuit breakers.

2) To assemble the feeder between a motor starter protector and a soft starter in size S2, the 3RA2932-1CA00 DIN-rail adapter must be used.

3) It is only permissible to assemble the feeder between the motor starter protector and the soft starter in size S3 on a mounting plate.

Note:

Link modules can be used in

- Size S00: up to max. 16 A
- Size S0: up to max. 32 A
- Size S2: up to max. 65 A



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| For 3RV2 motor starter protectors/ circuit breakers | For 3RT2 contactors | Actuating voltage of contactor | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Size | Size | | | | | | |
| **Hybrid link modules for motor starter protector to contactor[1]** | | | | | | | |
| Mechanical and electrical connection between motor starter protector with screw terminals and contactor with spring-loaded terminals | | | | | | | |
| **Single-unit packaging** | | | | | | | |
| S00 | S00 | AC, DC | **3RA2911-2FA00** | | 1 | 1 unit | 41B |
| S0 | S0 | AC[2], DC, AC/DC | **3RA2921-2FA00** | | 1 | 1 unit | 41B |
| **Multi-unit packaging** | | | | | | | |
| S00 | S00 | AC, DC | **3RA2911-2F** | | 1 | 10 units | 41B |
| S0 | S0 | AC[2], DC, AC/DC | **3RA2921-2F** | | 1 | 10 units | 41B |
| **Spacers[2]** For height compensation on AC contactors size S0 with spring-loaded terminals | | | | | | | |
| S0 | S0 | Single-unit packaging | **3RA2911-1CA00** | | 1 | 1 unit | 41B |
| S0 | S0 | Multi-unit packaging | **3RA2911-1C** | | 1 | 5 units | 41B |

3RA2911-2FA00

3RA2921-2FA00

3RA2911-1CA00

1) The hybrid link modules for motor starter protector to contactor cannot be used for 3RV1011, 3RV2.21-4PA1., 3RV2.21-4FA1., 3RV27 and 3RV28 motor starter protectors/circuit breakers. They are suitable only for constructing direct-on-line starters.

2) A spacer for height compensation on AC contactors size S0 is optionally available.

Note:

Link modules can be used in

- Size S00: up to max. 16 A
- Size S0: up to max. 32 A

| For motor starter protectors/ circuit breakers | Version | Screw terminals ⊕ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| Type | | | | | | |
| **Connection module (adapter and plug) for motor starter protectors/ circuit breakers with screw terminals** | | | | | | |
| | The connection module comprises an adapter and a motor feeder connector. | | | | | |
| | **Adapter** Ambient temperature $t_{u\ max.}$ = 60 °C | | | | | |
| 3RV2.2 | Size S0, rated operational current $I_e$ at AC-3/AC-3e/400 V: 25 A | **3RT1926-4RD01** | | 1 | 1 unit | 41B |
| 3RV2.2 | **Motor feeder connector** Size S0 | **3RT1900-4RE01** | | 1 | 1 unit | 41B |

3RT1926-4RD01

3RT1900-4RE01

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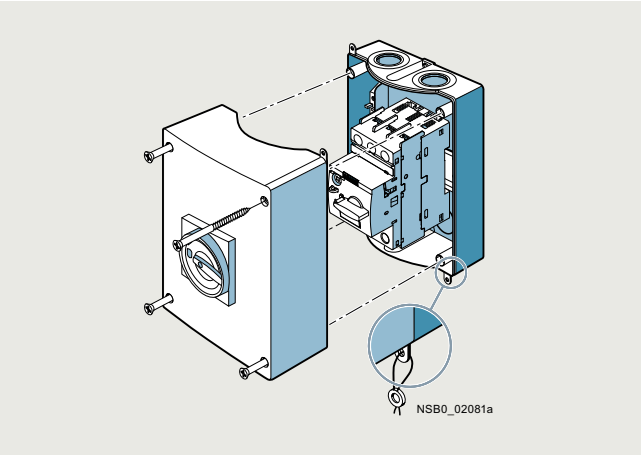
## Overview

### *Enclosures*

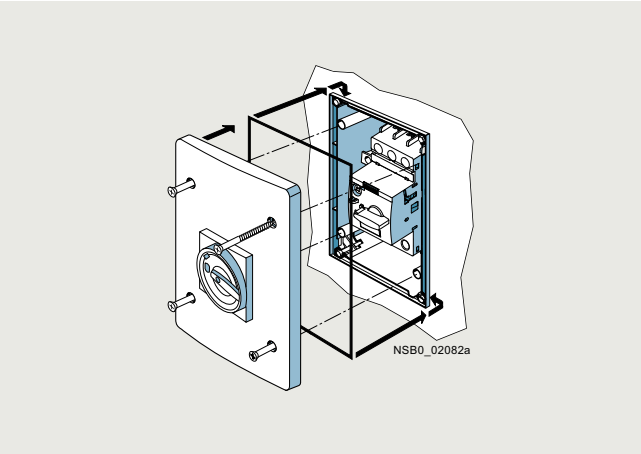
For the stand-alone installation of 3RV20 to 3RV24 motor starter protectors size S00 ($I_{n\,max}$ = 16 A), S0 ($I_{n\,max}$ = 32 A), S2 ($I_{n\,max}$ = 65 A), and for 3RV1011 motor starter protectors, molded-plastic and cast aluminum enclosures for surface mounting and molded-plastic enclosures for flush mounting are available in various dimensions.

When installed in a molded-plastic enclosure, the motor starter protectors have a rated operational voltage $U_e$ of 500 V.

The enclosures for surface mounting have the degree of protection IP55; the enclosures for flush mounting also comply with the degree of protection IP55 at the front. The cast aluminum enclosures for surface mounting achieve degree of protection IP65.




Enclosures for surface mounting




Enclosures for flush mounting (only for sizes S00 and S0)

There are two knock-out cable entries for cable glands at the top and two at the bottom; also on the rear corresponding cable entries are scored. There is a knockout on the top of the enclosure for indicator lights that are available as accessories.

The narrow enclosure can accommodate a motor starter protector without accessories, with transverse auxiliary switch and with lateral auxiliary switch. There is no provision for installing a motor starter protector with a signaling switch.

With size S00 to S2 3RV2 circuit breakers, the molded-plastic enclosures are equipped with a rotary operating mechanism.

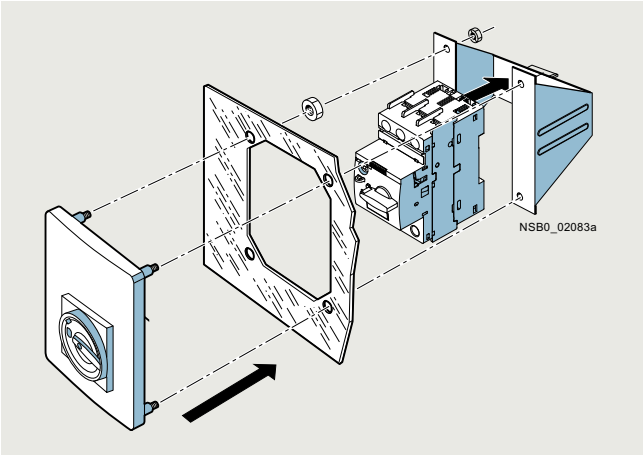
The enclosures can be supplied with either a black rotary operating mechanism or with an EMERGENCY OFF rotary operating mechanism with a red/yellow knob.

In the OFF position, all rotary operating mechanisms can be locked with up to three padlocks. These enclosures are not suitable for 3RV1011 motor starter protectors.

### *Front plates*

Motor starter protectors are frequently required to be actuated in any enclosure. Front plates equipped with a rotary operating mechanism for 3RV20 to 3RV24 motor starter protectors sizes S00 to S3 are available for this purpose.

A holder for the motor starter protectors sizes S00 and S0, into which the motor starter protectors can be snapped, is available for the front plates. It is not possible to use a signaling switch or 4-pole auxiliary switch. The front plates are not suitable for 3RV1011 motor starter protectors.




Front plate (including holder) for sizes S00 and S0

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## Selection and ordering data

| | Version | Degree of protection | Integrated terminals | Width | For 3RV20 to 3RV24 motor starter protectors | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | mm | Size | | | | | |
| **Molded-plastic enclosures for surface mounting[1]** | | | | | | | | | | |
| 3RV1933-1DA00 | **With rotary operating mechanism,** lockable in 0 position | IP55 | N and PE | 54 (for motor starter protector + lateral auxiliary switch) | S00[3], S0 | **3RV1923-1CA00** | | 1 | 1 unit | 41E |
| | | | | 72 (for motor starter protector + lateral auxiliary switch[2] + auxiliary release) | S00[3], S0 | **3RV1923-1DA00** | | 1 | 1 unit | 41E |
| | | | | 82 (for motor starter protector + lateral auxiliary switch[2] + auxiliary release) | S2 | **3RV1933-1DA00** | | 1 | 1 unit | 41E |
| 3RV1923-1FA00, 3RV1933-1GA00 | **With EMERGENCY OFF rotary operating mechanism,** lockable in 0 position | IP55 | N and PE | 54 (for motor starter protector + lateral auxiliary switch) | S00[3], S0 | **3RV1923-1FA00** | | 1 | 1 unit | 41E |
| | | | | 72 (for motor starter protector + lateral auxiliary switch[2] + auxiliary release) | S00[3], S0 | **3RV1923-1GA00** | | 1 | 1 unit | 41E |
| | | | | 82 (for motor starter protector + lateral auxiliary switch[2] + auxiliary release) | S2 | **3RV1933-1GA00** | | 1 | 1 unit | 41E |
| **Cast aluminum enclosures for surface mounting[1]** | | | | | | | | | | |
| 3RV1923-1DA01 | **With rotary operating mechanism,** lockable in 0 position | IP65 | PE[4] | 72 (for motor starter protector + lateral auxiliary switch[2] + auxiliary release) | S00[3], S0 | **3RV1923-1DA01** | | 1 | 1 unit | 41E |
| | **With EMERGENCY OFF rotary operating mechanism,** lockable in 0 position | IP65 | PE[4] | 72 (for motor starter protector + lateral auxiliary switch[2] + auxiliary release) | S00[3], S0 | **3RV1923-1GA01** | | 1 | 1 unit | 41E |
| **Molded-plastic enclosures for flush mounting[5]** | | | | | | | | | | |
| 3RV1923-2DA00 | **With rotary operating mechanism,** lockable in 0 position | IP55 (front side) | N and PE | 72 (for motor starter protector + lateral auxiliary switch[2] + auxiliary release) | S00[3], S0 | **3RV1923-2DA00** | | 1 | 1 unit | 41E |
| | **With EMERGENCY OFF rotary operating mechanism,** lockable in 0 position | IP55 (front side) | N and PE | 72 (for motor starter protector + lateral auxiliary switch[2] + auxiliary release) | S00[3], S0 | **3RV1923-2GA00** | | 1 | 1 unit | 41E |
| 3RV1913-2DA00 | **With actuator diaphragm** | IP55 (front side) | N and PE | 72 (for motor starter protector + lateral auxiliary switch[2] + auxiliary release) | S00[6] | **3RV1913-2DA00** | | 1 | 1 unit | 41E |
| **Molded-plastic enclosures for surface mounting** | | | | | | | | | | |
| 3RV1913-1CA00 | **With actuator diaphragm** | IP55 | N and PE | 85 | S00[6] | **3RV1913-1CA00** | | 1 | 1 unit | 41E |
| | | | | 105 | S00[6] | **3RV1913-1DA00** | | 1 | 1 unit | 41E |

1) The rear cable bushings cannot be used on 3RV2.11-...2. and 3RV2.21-...2. devices with spring-loaded terminals.
2) Only valid for lateral auxiliary switches with two auxiliary contacts.
3) Not for 3RV1011 motor starter protectors.
4) If required, an additional N terminal can be mounted (e.g. 8WA1011-1BG11).
5) Not suitable for 3RV2.11-...2. and 3RV2.21-...2. devices with spring-loaded terminals.
6) Only for 3RV1011 motor starter protectors.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| | Version | Degree of protection | For 3RV20 to 3RV24 motor starter protectors | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | | Size | | | | | |
| **Front plates**[1] | | | | | | | | |
| 3RV1923-4B + 3RV1923-4G | **Molded-plastic front plates with rotary operating mechanism,** lockable in 0 position<br>For actuation of 3RV2 motor starter protectors in any enclosure | IP55 (front side) | S00[2] up to S3 | **3RV1923-4B** | | 1 | 1 unit | 41E |
| | **Molded-plastic front plates with EMERGENCY OFF rotary operating mechanism, red/yellow,** lockable in 0 position<br>EMERGENCY OFF actuation of 3RV2 motor starter protectors in any enclosure | IP55 (front side) | S00[2] up to S3 | **3RV1923-4E** | | 1 | 1 unit | 41E |
| | **Holders for front plates**<br>Holder is mounted on front plate, motor starter protector with and without accessories is snapped in. | -- | S00[2], S0 | **3RV1923-4G** | | 1 | 1 unit | 41E |

1) It is not possible to use a signaling switch or 4-pole auxiliary switch with front plates.
2) Not for 3RV1011 motor starter protectors.

| | Version | Rated control supply voltage $U_s$ | For 3RV20 to 3RV24 motor starter protectors | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | Size | | | | | |
| **Indicator lights** | | | | | | | | |
| 3RV1903-5B | **Indicator lights**<br>For all enclosures and front plates<br>• With LED lamp for versions 110 ... 120 V, with glow lamp for versions 220 ... 500 V<br>• With colored lenses red, green, yellow-orange and clear | 110 ... 120<br>220 ... 240<br>380 ... 415<br>480 ... 500 | S00 to S3 | **3RV1903-5B**<br>**3RV1903-5C**<br>**3RV1903-5E**<br>**3RV1903-5G** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41E<br>41E<br>41E<br>41E |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

The 3RV29 infeed system is a convenient means of energy supply and distribution for a group of several motor starter protectors or complete load feeders with screw or spring-loaded terminals in sizes S00 and S0. Motor starter protectors or load feeders with a rated current of maximum 32 A each can be used. 3RV21 motor starter protectors cannot be used in this system.

The system is based on a basic module complete with a lateral incoming unit (3-phase busbar with infeed). This infeed with spring-loaded terminals is mounted on the right or left, depending on the version, and can be supplied with a maximum conductor cross-section of 25 $mm^2$ (with end sleeve). A basic module has two sockets onto each of which a motor starter protector can be snapped.

Expansion modules (3-phase busbars for system expansion) are available for extending the system. The individual modules are connected through an expansion plug.

The electrical connection between the 3-phase busbars and the motor starter protectors is implemented through plug-in connectors. The complete system can be mounted on a TH 35 DIN rail to IEC 60715, and can be expanded as required up to a maximum current carrying capacity of 63 A.

The system is mounted extremely quickly and easily thanks to the simple plug-in terminals. Thanks to the lateral infeed, the system also saves space in the control cabinet.

The additional height required for the infeed unit is only 30 mm. The alternative infeed possibilities on each side offer a high degree of flexibility for configuring the control cabinet: Infeed on left-hand or right-hand side as well as infeed on one side and outfeed on the other side to supply further loads are all possible. A terminal block with spring-loaded terminals in combination with a DIN rail enables the integration of not only SIRIUS motor starter protectors but also 1-phase, 2-phase and 3-phase components such as 5SY miniature circuit breakers or SIRIUS relay components.

The 3RV29 infeed system is approved in accordance with IEC to 500 V. It is also UL-approved and authorized for "Self-Protected Combination Motor Controllers" starters (Type E), for starters (Type F) (starters (Type E) + contactors) and for circuit breakers according to UL 489 (3RV27/3RV28).

***Assembly kits for constructing the infeed system with spring-loaded terminals***

The following versions can be ordered:

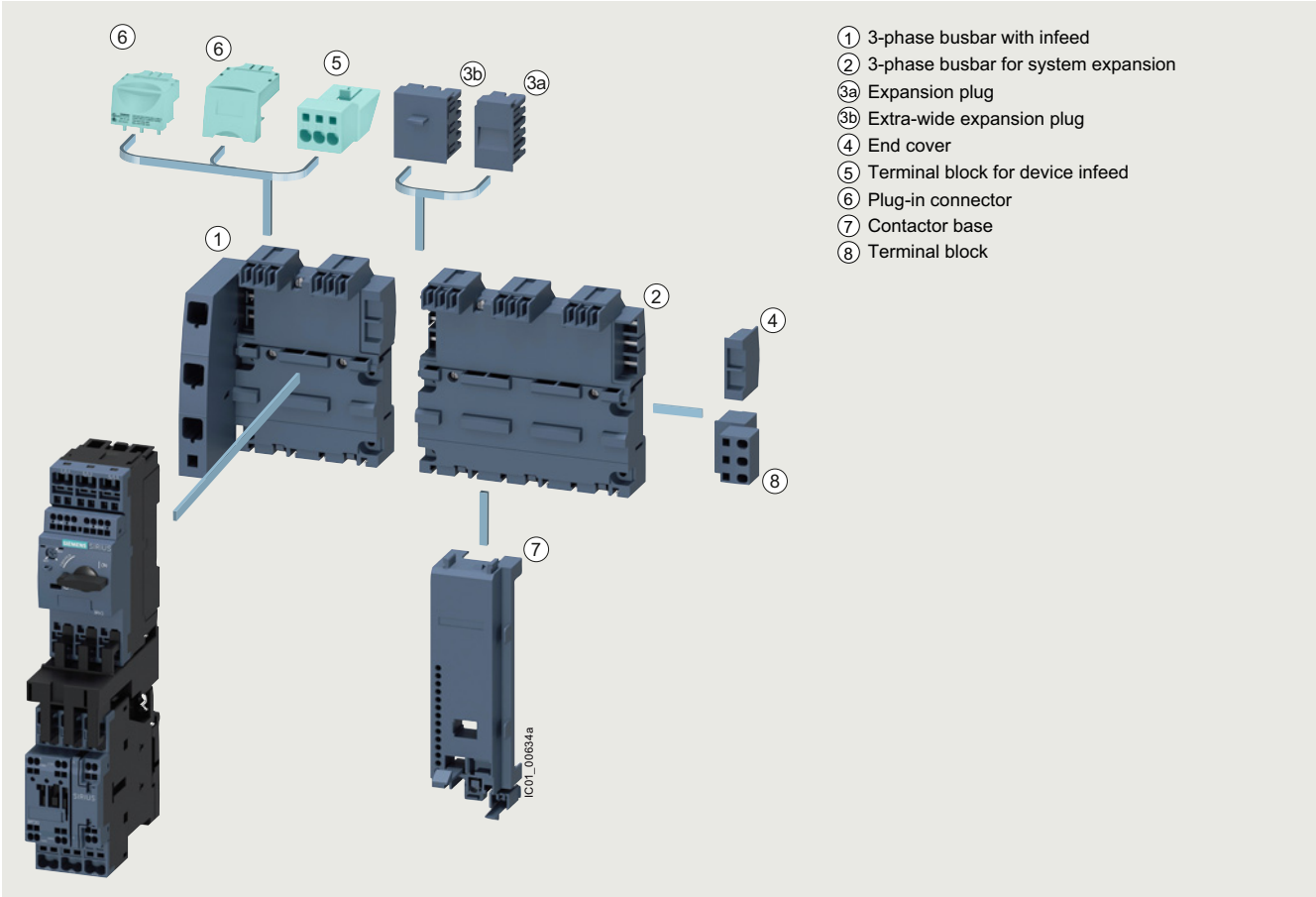
- Basic set for two feeders
- Expansion sets for two or three feeders

The assembly kits contain 3-phase busbars, plug-in connectors and contactor bases (see page 7/72).

Note:

Each set contains plug-in connectors for sizes S00 and S0.

Example: The basic set contains four plug-in connectors (two each for S00 and S0).




SIRIUS 3RV29 infeed system

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## 3RV29 infeed system

### ① *3-phase busbars with infeed*

A 3-phase busbar with infeed unit is required for connecting the incoming supply. These modules comprise one infeed module and two sockets which each accept one motor starter protector. A choice of two versions with infeed on the left or right is available. The infeed is connected to spring-loaded terminals. They permit an infeed with conductor cross-sections of up to 25 $mm^2$ with end sleeve. An end cover is supplied with each module.

### ② *3-phase busbars for system expansion*

The 3-phase busbars for system expansion support expansion of the system. There is a choice of modules with two or three sockets. The system can be expanded as required up to a maximum current carrying capacity of 63 A. An expansion plug is supplied with each module.

### ③a *Expansion plug*

The expansion plug is used for electrical connection of adjacent 3-phase busbars. The current carrying capacity of this plug equals 63 A. One expansion plug is supplied with each 3-phase busbar for system expansion. Additional expansion plugs are therefore only required as spare parts.

### ③b *Extra-wide expansion plug*

The wide expansion plug makes the electrical connection between two 3-phase busbars, thus performing the same function as the 3RV2917-5BA00 expansion plug; the electrical characteristics (e.g. a current carrying capacity of 63 A) are identical.

The 3RV2917-5E expansion plug is 10 mm wider than the 3RV2917-5BA00 expansion plug, hence in the plugged state there is a distance of 10 mm between the connected 3-phase busbars. This distance can be used to lay the auxiliary current and control current wiring ("wiring duct"). The motor starter protector and contactor can be wired from underneath, which means that the complete cable duct above the system can be omitted.

### ④ *End cover*

The end cover is used to cover the 3-phase busbar at the open end of the system. This cover is therefore only required once for each system. An end cover is supplied with each 3-phase busbar system with infeed. Further end covers are therefore only required as spare parts.

### ⑤ *Terminal block for device infeed*

A new addition to the system is a plug for outfeeding to a device slot within a module. This offers the option not only of connecting three-phase loads to the system, but also of integrating 1-phase loads into the infeed system.

### ⑥ *Plug-in connector*

The plug-in connector is used for the electrical connection between the 3-phase busbar and the 3RV2 or 3RV1011 motor starter protector. These plug-in connectors are available for screw or spring-loaded terminals.

### ⑦ *Contactor base*

Load feeders can be assembled in the system using the S00 and S0 contactor base. The contactor bases are suitable for contactors of sizes S00 and S0 with screw and spring-loaded terminals and are simply snapped onto the 3-phase busbars. Direct-on-line starters and reversing starters are possible. One contactor base is required for direct-on-line starters and two are required for reversing starters.

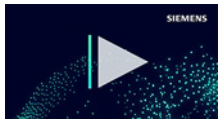
To assemble load feeders for reversing starters, the contactor bases can be arranged alongside each other (90 mm overall width). In this case the mechanical interlocking of the contactors is possible. The S0 contactor bases are also suitable for soft starters size S00 and S0 with screw terminal.

The infeed system is designed for mounting on a TH 35 DIN rail with 7.5 mm overall depth. This DIN rail gives the contactor base a stable mounting surface to sit on. If DIN rails with a depth of 15 mm are used, the spacer connected to the bottom of the contactor base must be knocked out and plugged into the DIN rail mating piece, which is also located on the underside. Then the contactor base also has a stable mounting surface. When DIN rails with a depth of 7.5 mm are used, the spacer has no function and can be removed.

The link modules are used for direct on-line starters, in which case the use of a contactor base is not absolutely necessary. Motor starter protector and contactor assemblies can then be directly snapped onto the sockets of the 3-phase busbars. For feeders of sizes S00 and S0, the corresponding 3RA1921-1...., 3RA2911-2...., 3RA2921-1.... or 3RA2921-2.... link modules should generally be used.

### ⑧ *Terminal block*

The 3RV2917-5D terminal block enables the integration of not only SIRIUS motor starter protectors but also 1-phase, 2-phase and 3-phase components. The three phases can be fed out of the system using the terminal block; which means that single-phase loads can also be integrated in the system. The terminal block is plugged into the slot of the expansion plug and thus enables outfeeding from the middle or end of the infeed system. The terminal block can be rotated through 180° and be locked to the support modules of the infeed system. In addition, the 45 mm wide TH 35 3RV1917-7B DIN rail option for screwing onto the support plate facilitates plugging the 1-phase, 2-phase and 3-phase components onto the infeed system.




Video:
SIRIUS News SIRIUS 3RV29 infeed system - Assembly without tools

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## Technical specifications

| More information |
|---|
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60279172 |

### General data

| | | | | | |
|---|---|---|---|---|---|
| **Type** | | | | | **3RV29.7** |
| Size | | | | | S00, S0 |
| **Standards** | | | | | |
| • IEC 60947-2 | | | | | Yes |
| • IEC 60947-4-1 | | | | | Yes |
| • UL 508/UL 60947-4-1 | | | | | Yes |
| **Rated current $I_n$** | | | | A | 63 |
| **Permissible rated current at inside temperature of control cabinet** | | | | | |
| Motor starter protectors | Size | Rated current | Inside temperature of control cabinet | | |
| • 3RV2.11/3RV1011 | S00 | ... 14 A | 60 °C | % | 100 |
| | | > 14 ... 16 A | 40 °C | % | 100 |
| | | | 60 °C | % | 87 |
| • 3RV2.21 | S0 | ... 16 A | 60 °C | % | 100 |
| | | > 16 ... 25 A | 40 °C | % | 100 |
| | | | 60 °C | % | 87 |
| | | > 25 ... 32 A | 40 °C | % | 87 |
| **Permissible ambient temperature** | | | | | |
| • Storage/transport | | | | °C | -50 ... +80 |
| • Operation | | | | °C | -20 ... +60 |
| **Rated operational voltage $U_e$** | | | | | |
| • According to IEC | | 10% overvoltage | | V AC | 500 |
| | | 5% overvoltage | | V AC | 525 |
| • According to UL/CSA | | | | V AC | 600 |
| **Rated frequency** | | | | Hz | 50/60 |
| **Rated impulse withstand voltage $U_{imp}$** | | | | kV | 6 |
| **Short-circuit strength** | | | | | corresponds to the mounted motor starter protector or load feeder. The assembly instructions must be followed, see Operating Instructions |
| **Degree of protection IP on the front** according to IEC 60529 | | | | | IP20 with cover and 25 $mm^2$ conductor cross-section at the infeed terminal |
| **Touch protection on the front** according to IEC 60529 | | | | | Finger-safe for vertical touching from the front with cover and 25 $mm^2$ conductor cross-section at the infeed terminal |

### Conductor cross-sections

| **Type** | | **3-phase busbar with infeed 3RV2917-1A, 3RV2917-1E** | **Terminal block 3RV2917-5D** | **Terminal block for device infeed 3RV2917-5FA00** |
|---|---|---|---|---|
| **Conductor cross-sections (min./max.)** | | | | |
| • Solid or stranded | $mm^2$ | 4 ... 25 | 1.5 ... 6 | 1 ... 10 |
| • Finely stranded with end sleeve | $mm^2$ | 4 ... 25 | 1.5 ... 4 | 1 ... 6 |
| • Finely stranded without end sleeve | $mm^2$ | 6 … 25 | 1.5 ... 6 | -- |
| • AWG cables | AWG | 10 ... 3 | 15 ... 10 | 18 ... 8 |

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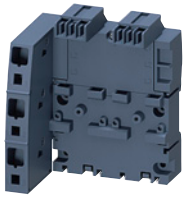
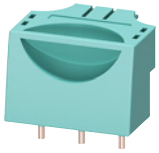
## 3RV29 infeed system

### Selection and ordering data

| Type | Version | For 3RV20, 3RV23, 3RV24, 3RV27, 3RV28, 3RV1011 motor starter protectors<br>Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **3-phase busbars with infeed** | | | | | | | |
|  <br>3RV2917-1A | **3-phase busbars with infeed**<br>Incl. 3RV2917-6A end cover | For two motor starter protectors with screw or spring-loaded terminals | | | | | |
| | • With infeed on the left | S00, S0 | **3RV2917-1A** | | 1 | 1 unit | 41E |
| | • With infeed on the right | S00, S0 | **3RV2917-1E** | | 1 | 1 unit | 41E |
| **3-phase busbars for system expansion** | | | | | | | |
| <br>3RV2917-4A | **3-phase busbars**<br>Incl. 3RV2917-5BA00 expansion plug | For motor starter protectors with screw or spring-loaded terminals | | | | | |
| | • For 2 motor starter protectors | S00, S0 | **3RV2917-4A** | | 1 | 1 unit | 41E |
| | • For 3 motor starter protectors | S00, S0 | **3RV2917-4B** | | 1 | 1 unit | 41E |
| **Plug-in connectors** | | | | | | | |
| <br>3RV2917-5AA00 | **Plug-in connectors**<br>To make contact with the 3RV2 motor starter protectors | • For spring-loaded terminals | **Spring-loaded terminals** | | | | |
| | - Single-unit packaging | S00[1]<br>S0[2] | **3RV2917-5AA00**<br>**3RV2927-5AA00** | | 1<br>1 | 1 unit<br>1 unit | 41E<br>41E |
| | - Multi-unit packaging | S00[1]<br>S0[2] | **3RV2917-5A**<br>**3RV2927-5A** | | 1<br>1 | 10 units<br>10 units | 41E<br>41E |
| | • For screw terminals | | **Screw terminals** | | | | |
|  <br>3RV2917-5CA00 | - Single-unit packaging | S00[1)3)]<br>S0[2)4)] | **3RV2917-5CA00**<br>**3RV1927-5AA00** | | 1<br>1 | 1 unit<br>1 unit | 41E<br>41E |
| | - Multi-unit packaging | S00[1)3)]<br>S0[2)4)] | **3RV2917-5C**<br>**3RV1927-5A** | | 1<br>1 | 10 units<br>10 units | 41E<br>41E |
| | **Plug-in connectors**<br>To make contact with the 3RV1011 motor starter protectors | • For screw terminals | | | | | |
| | - Single-unit packaging | S00 | **3RV1917-5CA00** | | 1 | 1 unit | 41E |
| | - Multi-unit packaging | S00 | **3RV1917-5C** | | 1 | 10 units | 41E |

1) $I$ > 14 A, please note derating.
2) $I$ > 16 A, please note derating.
3) The plug-in connector cannot be used for the 3RV2711 and 3RV2811 circuit breakers with size S00.
4) The plug-in connector can be used for the 3RV2711, 3RV2811 (size S00) and 3RV2721, 3RV2821 (size S0) circuit breakers.

| Type | Version | For contactors<br>Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Contactor bases** | | | | | | | |
| <br>3RV2927-7AA00 | **Contactor bases**<br>For mounting direct-on-line or reversing starters | Single-unit packaging | | | | | |
| | | S00[1] | **3RV2917-7AA00** | | 1 | 1 unit | 41E |
| | | S00[1], S0 | **3RV2927-7AA00** | | 1 | 1 unit | 41E |

1) Not for 3RV1011 motor starter protectors.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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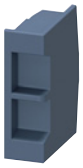
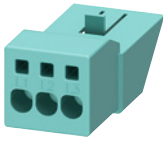
| | Type | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Terminal blocks** | | | | | | | |
| 3RV2917-5D | **Terminal blocks** For integration of 1-phase, 2-phase and 3-phase components | Single-unit packaging | **3RV2917-5D** | | 1 | 1 unit | 41E |
| **TH 35 DIN rails, width 45 mm** | | | | | | | |
| 3RV1917-7B | **TH 35 DIN rails** According to IEC 60715, width 45 mm For mounting on 3-phase busbars | Single-unit packaging | **3RV1917-7B** | | 1 | 1 unit | 41E |
| **Extra-wide expansion plugs** | | | | | | | |
| 3RV2917-5E | **Extra-wide expansion plugs** As accessory | Single-unit packaging | **3RV2917-5E** | | 1 | 1 unit | 41E |
| **Expansion plugs** | | | | | | | |
| 3RV2917-5BA00 | **Expansion plugs**[1] As spare part | Single-unit packaging | **3RV2917-5BA00** | | 1 | 1 unit | 41E |
| **End covers** | | | | | | | |
|  3RV2917-6A | **End covers**[2] As spare part | Multi-unit packaging | **3RV2917-6A** | | 100 | 10 units | 41E |
| **Terminal blocks for device infeed** | | | | | | | |
|  3RV2917-5FA00 | **Terminal blocks for device infeed** | Single-unit packaging | **3RV2917-5FA00** | | 1 | 1 unit | 41E |

[1] The expansion plug is included in the scope of supply of the 3RV2917-4. 3-phase busbars for system expansion.

[2] The end cover is included in the scope of supply of the 3RV2917-1. 3-phase busbars with infeed system.

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## 3RV29 infeed system

| Version | For motor starter protectors/ circuit breakers with spring-loaded terminals<br>Size | **Spring-loaded terminals**<br>Article No. | <br>Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Assembly kits for constructing the infeed system with spring-loaded terminals**[1] | | | | | | |
| **Basic set for two feeders** | | **3RV2907-1AB00** | | 1 | 1 unit | 41E |
| contains: | | | | | | |
| • 1 x 3-phase busbars 3RV2917-1A (incl. end cover 3RV2917-6A), with infeed left, for two motor starter protectors with spring-loaded terminals | S00, S0 | | | | | |
| • 2 x plug-in connectors for spring-loaded terminals 3RV2917-5AA00 | S00 | | | | | |
| • 2 x plug-in connectors for spring-loaded terminals 3RV2927-5AA00 | S0 | | | | | |
| • 2 x 3RV2927-7AA00 contactor bases | S00, S0 | | | | | |
| **Expansion set for two feeders** | | **3RV2907-4AB00** | | 1 | 1 unit | 41E |
| contains: | | | | | | |
| • 1 x 3-phase busbars 3RV2917-4A (incl. expansion plug 3RV2917-5BA00), for two motor starter protectors with spring-loaded terminals | S00, S0 | | | | | |
| • 2 x plug-in connectors for spring-loaded terminals 3RV2917-5AA00 | S00 | | | | | |
| • 2 x plug-in connectors for spring-loaded terminals 3RV2927-5AA00 | S0 | | | | | |
| • 2 x 3RV2927-7AA00 contactor bases | S00, S0 | | | | | |
| **Expansion set for three feeders** | | **3RV2907-4BB00** | | 1 | 1 unit | 41E |
| contains: | | | | | | |
| • 1 x 3-phase busbars 3RV2917-4B (incl. expansion plug 3RV2917-5BA00), for three motor starter protectors with spring-loaded terminals | S00, S0 | | | | | |
| • 3 x plug-in connectors for spring-loaded terminals 3RV2917-5AA00 | S00 | | | | | |
| • 3 x plug-in connectors for spring-loaded terminals 3RV2927-5AA00 | S0 | | | | | |
| • 3 x 3RV2927-7AA00 contactor bases | S00, S0 | | | | | |

[1] Not for 3RV1011 motor starter protectors.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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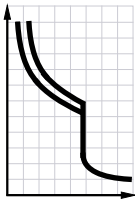
## Technical specifications

See pages 7/9, 7/11, 7/14, 7/19, 7/20 and 7/23

## Selection and ordering data

### *Without auxiliary switches*



| Rated current | Thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| $I_n$ | | $I >$ | $I_{cu}$ | Article No. / Price per PU | | | |
| A | A | A | kA | | | | |
| **Size S00** | | | | | | | |
| 0.2 | 0.2 | 1.2 | 100 | **3RV1611-0BD10** | 1 | 1 unit | 41E |

3RV1611-0BD10

Note:

The auxiliary switch required for signaling must be ordered separately.

## Accessories

| Version | Contacts | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| | | Article No. / Price per PU | | | |
| **Mountable auxiliary switches (essential accessories)** | | | | | |
| **Transverse auxiliary switches**<br>With screw terminals, mountable on the front | 1 NO + 1 NC | **3RV2901-1E** | 1 | 1 unit | 41E |
| **Lateral auxiliary switches**<br>With screw terminals, mountable on the left | 1 NO + 1 NC | **3RV2901-1A** | 1 | 1 unit | 41E |

3RV2901-1E

3RV2901-1A

Additional auxiliary switches and other accessories, see from page 7/47 onwards.

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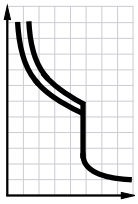
## For distance protection

### Technical specifications

See page 7/24

### Selection and ordering data

***Voltage transformer motor starter protectors with transverse auxiliary switches (1 CO)***



| Rated current | Thermal overload release | Instantaneous electronic release | Auxiliary switch integrated in the motor starter protector, transverse | Short-circuit breaking capacity at 400 V AC | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| $I_n$ | ⊏ | $I >$ | | $I_{cu}$ | Article No. / Price per PU | | | |
| A | A | A | | kA | | | | |
| **Size S00** | | | | | | | | |
| 1.4 | 1.4 | 6 | 1 CO | 50 | **3RV1611-1AG14** | 1 | 1 unit | 41E |
| 2.5 | 2.5 | 10.5 | 1 CO | 50 | **3RV1611-1CG14** | 1 | 1 unit | 41E |
| 3 | 3 | 20 | 1 CO | 50 | **3RV1611-1DG14** | 1 | 1 unit | 41E |

3RV1611-1.G14

### Accessories

| Version | Contacts | Screw terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| | | Article No. / Price per PU | | | |
| **Mountable auxiliary switches for other signaling purposes** | | | | | |
| **Lateral auxiliary switches**<br>With screw terminals, mountable on the left | 1 NO + 1 NC | **3RV2901-1A** | 1 | 1 unit | 41E |

3RV2901-1A

Additional auxiliary switches and other accessories, see from page 7/47 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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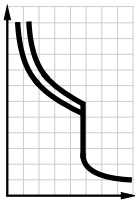
## Selection and ordering data

### *CLASS 10, without auxiliary switches*



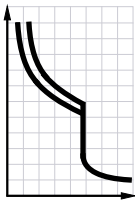
| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $I_n$ | | ⊏ | I > | $I_{cu}$ | | | | | |
| A | kW | A | A | kA | | | | | |
| **Size S00** | | | | | | | | | |
| 0.16 | 0.04 | 0.11 ... 0.16 | 2.1 | 100 | **3RV1011-0AA10** | | 1 | 1 unit | 41E |
| 0.2 | 0.06 | 0.14 ... 0.2 | 2.6 | 100 | **3RV1011-0BA10** | | 1 | 1 unit | 41E |
| 0.25 | 0.06 | 0.18 ... 0.25 | 3.3 | 100 | **3RV1011-0CA10** | | 1 | 1 unit | 41E |
| 0.32 | 0.09 | 0.22 ... 0.32 | 4.2 | 100 | **3RV1011-0DA10** | | 1 | 1 unit | 41E |
| 0.4 | 0.09 | 0.28 ... 0.4 | 5.2 | 100 | **3RV1011-0EA10** | | 1 | 1 unit | 41E |
| 0.5 | 0.12 | 0.35 ... 0.5 | 6.5 | 100 | **3RV1011-0FA10** | | 1 | 1 unit | 41E |
| 0.63 | 0.18 | 0.45 ... 0.63 | 8.2 | 100 | **3RV1011-0GA10** | | 1 | 1 unit | 41E |
| 0.8 | 0.18 | 0.55 ... 0.8 | 10 | 100 | **3RV1011-0HA10** | | 1 | 1 unit | 41E |
| 1 | 0.25 | 0.7 ... 1 | 13 | 100 | **3RV1011-0JA10** | | 1 | 1 unit | 41E |
| 1.25 | 0.37 | 0.9 ... 1.25 | 16 | 100 | **3RV1011-0KA10** | | 1 | 1 unit | 41E |
| 1.6 | 0.55 | 1.1 ... 1.6 | 21 | 100 | **3RV1011-1AA10** | | 1 | 1 unit | 41E |
| 2 | 0.75 | 1.4 ... 2 | 26 | 100 | **3RV1011-1BA10** | | 1 | 1 unit | 41E |
| 2.5 | 0.75 | 1.8 ... 2.5 | 33 | 100 | **3RV1011-1CA10** | | 1 | 1 unit | 41E |
| 3.2 | 1.1 | 2.2 ... 3.2 | 42 | 100 | **3RV1011-1DA10** | | 1 | 1 unit | 41E |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | **3RV1011-1EA10** | | 1 | 1 unit | 41E |
| 5 | 1.5 | 3.5 ... 5 | 65 | 100 | **3RV1011-1FA10** | | 1 | 1 unit | 41E |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | **3RV1011-1GA10** | | 1 | 1 unit | 41E |
| 8 | 3 | 5.5 ... 8 | 104 | 50 | **3RV1011-1HA10** | | 1 | 1 unit | 41E |
| 10 | 4 | 7 ... 10 | 130 | 50 | **3RV1011-1JA10** | | 1 | 1 unit | 41E |
| 12 | 5.5 | 9 ... 12 | 156 | 50 | **3RV1011-1KA10** | | 1 | 1 unit | 41E |

3RV1011-..A10

[1] Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

The accessories of 3RV2 motor starter protectors/circuit breakers can be used with exceptions, see page 7/47 onwards.

### *CLASS 10, with transverse auxiliary switch (1 NO + 1 NC)*



| Rated current | Suitable for three-phase motors[1] with *P* | Setting range for thermal overload release | Instantaneous electronic release | Short-circuit breaking capacity at 400 V AC | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $I_n$ | | ⊏ | I > | $I_{cu}$ | | | | | |
| A | kW | A | A | kA | | | | | |
| **Size S00** | | | | | | | | | |
| 0.16 | 0.04 | 0.11 ... 0.16 | 2.1 | 100 | **3RV1011-0AA15** | | 1 | 1 unit | 41E |
| 0.2 | 0.06 | 0.14 ... 0.2 | 2.6 | 100 | **3RV1011-0BA15** | | 1 | 1 unit | 41E |
| 0.25 | 0.06 | 0.18 ... 0.25 | 3.3 | 100 | **3RV1011-0CA15** | | 1 | 1 unit | 41E |
| 0.32 | 0.09 | 0.22 ... 0.32 | 4.2 | 100 | **3RV1011-0DA15** | | 1 | 1 unit | 41E |
| 0.4 | 0.09 | 0.28 ... 0.4 | 5.2 | 100 | **3RV1011-0EA15** | | 1 | 1 unit | 41E |
| 0.5 | 0.12 | 0.35 ... 0.5 | 6.5 | 100 | **3RV1011-0FA15** | | 1 | 1 unit | 41E |
| 0.63 | 0.18 | 0.45 ... 0.63 | 8.2 | 100 | **3RV1011-0GA15** | | 1 | 1 unit | 41E |
| 0.8 | 0.18 | 0.55 ... 0.8 | 10 | 100 | **3RV1011-0HA15** | | 1 | 1 unit | 41E |
| 1 | 0.25 | 0.7 ... 1 | 13 | 100 | **3RV1011-0JA15** | | 1 | 1 unit | 41E |
| 1.25 | 0.37 | 0.9 ... 1.25 | 16 | 100 | **3RV1011-0KA15** | | 1 | 1 unit | 41E |
| 1.6 | 0.55 | 1.1 ... 1.6 | 21 | 100 | **3RV1011-1AA15** | | 1 | 1 unit | 41E |
| 2 | 0.75 | 1.4 ... 2 | 26 | 100 | **3RV1011-1BA15** | | 1 | 1 unit | 41E |
| 2.5 | 0.75 | 1.8 ... 2.5 | 33 | 100 | **3RV1011-1CA15** | | 1 | 1 unit | 41E |
| 3.2 | 1.1 | 2.2 ... 3.2 | 42 | 100 | **3RV1011-1DA15** | | 1 | 1 unit | 41E |
| 4 | 1.5 | 2.8 ... 4 | 52 | 100 | **3RV1011-1EA15** | | 1 | 1 unit | 41E |
| 5 | 1.5 | 3.5 ... 5 | 65 | 100 | **3RV1011-1FA15** | | 1 | 1 unit | 41E |
| 6.3 | 2.2 | 4.5 ... 6.3 | 82 | 100 | **3RV1011-1GA15** | | 1 | 1 unit | 41E |
| 8 | 3 | 5.5 ... 8 | 104 | 50 | **3RV1011-1HA15** | | 1 | 1 unit | 41E |
| 10 | 4 | 7 ... 10 | 130 | 50 | **3RV1011-1JA15** | | 1 | 1 unit | 41E |
| 12 | 5.5 | 9 ... 12 | 156 | 50 | **3RV1011-1KA15** | | 1 | 1 unit | 41E |

3RV1011-..A15 with integrated transverse auxiliary switch

[1] Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

The accessories of 3RV2 motor starter protectors/circuit breakers can be used with exceptions, see page 7/47 onwards.

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## General data

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-control<br>Industry Mall, see<br>• www.siemens.com/product?3RU2<br>• www.siemens.com/product?3RB3<br>• www.siemens.com/product?3RB2 | TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=ElectronicOverloadRelay<br>Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188<br>Conversion tool, see www.siemens.com/conversion-tool |

| Features | 3RU21 | 3RB30/3RB31 | 3RB20/3RB21 | 3RB22/3RB23 | 3RB24 | Benefits |
|---|---|---|---|---|---|---|
| **General data** | | | | | | |
| **Sizes** | S00 ... S3 | S00 ... S3 | S6 ... S12 | S00 ... S12 | S00 ... S12 | • Are coordinated with the dimensions, connections and technical characteristics of the other devices in the SIRIUS modular system (contactors, etc.)<br>• Permit the mounting of slim and compact load feeders in widths of 45 mm (S00, S0), 55 mm (S2), 70 mm (S3), 120 mm (S6) and 145 mm (S10/S12); this does not include the current measuring modules for the 3RB22 to 3RB24 evaluation modules sizes S00 to S3<br>• Simplify configuration |
| **Seamless current range** | 0.11 ... 100 A | 0.1 ... 115 A | 50 ... 630 A | 0.3 ... 630 A (up to 820 A)[1] | 0.3 ... 630 A (up to 820 A)[1] | • Allows easy and consistent configuration with one series of overload relays (for small to large loads) |
| **Protection functions** | | | | | | |
| **Tripping due to overload** | ✓ | ✓ | ✓ | ✓ | ✓ | • Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to overload |
| **Tripping due to phase asymmetry** | ✓ | ✓ | ✓ | ✓ | ✓ | • Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to phase asymmetry |
| **Tripping due to phase failure** | ✓ | ✓ | ✓ | ✓ | ✓ | • Minimizes heating of three-phase motors during phase failure |
| **Protection of single-phase loads** | ✓ | -- | -- | ✓ | ✓ | • Enables the protection of single-phase loads |
| **Tripping in the event of overheating**<br>by<br>**Integrated thermistor motor protection function** | --[2] | --[2] | --[2] | ✓ | ✓ | • Provides optimum temperature-dependent protection of loads against excessive temperature rises, e.g. for stator-critical motors or in the event of insufficient coolant flow, contamination of the motor surface or long starting or braking operations<br>• Eliminates the need for additional special equipment<br>• Saves space in the control cabinet<br>• Reduces wiring outlay and costs |
| **Tripping in the event of a ground fault**<br>by<br>**Internal ground-fault detection (activatable)** | -- | ✓ (only 3RB31) | ✓ (only 3RB21) | ✓ | ✓ | • Provides optimum protection of loads against incomplete ground faults due to moisture, condensed water, damage to the insulation material, etc.<br>• Eliminates the need for additional special equipment<br>• Saves space in the control cabinet<br>• Reduces wiring outlay and costs |

✓ Available
-- Not available

[1] Motor currents up to 820 A can be recorded and evaluated, e.g. by a 3RB2906-2BG1 current measuring module (0.3 to 3 A), in combination with a 3UF1868-3GA00 (820 A/1 A) series transformer.
For 3UF18 transformers, see page 10/21.

[2] The SIRIUS 3RN thermistor motor protection devices can be used to provide additional temperature-dependent protection.

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| Features | 3RU21 | 3RB30/3RB31 | 3RB20/3RB21 | 3RB22/3RB23 | 3RB24 | Benefits |
|---|---|---|---|---|---|---|
| **Features** | | | | | | |
| **RESET function** | ✓ | ✓ | ✓ | ✓ | ✓ | • Allows manual or automatic resetting of the device |
| **Remote RESET function** | ✓ (by means of separate module) | ✓ (only with 3RB31 and external auxiliary voltage 24 V DC) | ✓ (only with 3RB21 and external auxiliary voltage 24 V DC) | ✓ (electrically via external button) | ✓ (electrically with button or via IO-Link) | • Allows the remote resetting of the device |
| **TEST function for auxiliary contacts** | ✓ | ✓ | ✓ | ✓ | ✓ | • Allows easy checking of the function and wiring |
| **TEST function for electronics** | -- | ✓ | ✓ | ✓ | ✓ | • Allows checking of the electronics |
| **Status display** | ✓ | ✓ | ✓ | ✓ | ✓ | • Displays the current operating state |
| **Large current adjustment button** | ✓ | ✓ | ✓ | ✓ | ✓ | • Makes it easier to set the relay exactly to the correct current value |
| **Integrated auxiliary contacts (1 NO + 1 NC)** | ✓ | ✓ | ✓ | ✓ (2 x) | -- | • Allow the load to be switched off if necessary<br>• Can be used to output signals |
| **Integrated auxiliary contacts (1 CO and 1 NO in series)** | -- | -- | -- | -- | ✓ | • Enable the controlling of contactors directly from the higher-level control system through IO-Link |
| **IO-Link connection** | -- | -- | -- | -- | ✓ | • Reduction of wiring in the control cabinet<br>• Enables communication |
| **Connection of optional handheld device** | -- | -- | -- | -- | ✓ | • Enables local operation |
| **Communication capability through IO-Link** | | | | | | |
| **Full starter functionality through IO-Link** | -- | -- | -- | -- | ✓ | • Enables in combination with the SIRIUS 3RT contactors the assembly of communication-capable motor starters (direct-on-line, reversing and star-delta (wye-delta) starting) |
| **Readout of diagnostics functions** | -- | -- | -- | -- | ✓ | • Enables the readout of diagnostics information such as overload, open circuit, ground fault, etc. |
| **Readout of current values** | -- | -- | -- | -- | ✓ | • Enables the readout of current values and their direct processing in the higher-level control system |
| **Readout of all set parameters** | -- | -- | -- | -- | ✓ | • Enables the readout of all set parameters, e.g. for plant documentation |

✓ Available

-- Not available

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## General data

| Features | 3RU21 | 3RB30/3RB31 | 3RB20/3RB21 | 3RB22/3RB23 | 3RB24 | Benefits |
|---|---|---|---|---|---|---|
| **Design of load feeders** | | | | | | |
| **Short-circuit strength up to 100 kA at 690 V** (in conjunction with the corresponding fuses or the corresponding motor starter protector) | ✓ | ✓ | ✓ | ✓ | ✓ | • Provides optimum protection of the loads and operating personnel in the event of short circuits due to insulation faults or faulty switching operations |
| **Electrical and mechanical matching to 3RT contactors** | ✓ | ✓ | ✓ | ✓[1] | ✓[1] | • Simplifies configuration<br>• Reduces wiring outlay and costs<br>• Enables stand-alone installation as well as space-saving direct mounting |
| **Straight-through transformers for main circuit[2]** (in this case the cables are routed through the feed-through openings of the overload relay and connected directly to the box terminals of the contactor) | -- | ✓ (S2, S3) | ✓ (S6) | ✓ (S00 ... S6) | ✓ (S00 ... S6) | • Reduce the contact resistance (only one point of contact)<br>• Save wiring costs (easy, no need for tools, and fast)<br>• Save material costs<br>• Reduce installation costs |
| **Spring-loaded terminals for main circuit[2]** | ✓ (S00, S0) | ✓ (S00, S0) | -- | -- | -- | • Enable fast connections<br>• Permit vibration-resistant connections<br>• Enable maintenance-free connections |
| **Spring-loaded terminals for auxiliary circuits[2]** | ✓ | ✓ | ✓ | ✓ | ✓ | • Enable fast connections<br>• Permit vibration-resistant connections<br>• Enable maintenance-free connections |
| **Full starter functionality through IO-Link** | -- | -- | -- | -- | ✓ | • Enables in combination with the SIRIUS 3RT contactors the assembly of communication-capable motor starters (direct-on-line, reversing and star-delta (wye-delta) starting) |
| **Starter function** | -- | -- | -- | -- | ✓ | • Integration of feeders via IO-Link in the control system up to 630 A or 820 A |

✓ Available
-- Not available

[1] Exception: up to size S3, only stand-alone installation is possible.
[2] Available as an alternative to screw terminals.

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| Features | 3RU21 | 3RB30/3RB31 | 3RB20/3RB21 | 3RB22/3RB23 | 3RB24 | Benefits |
|---|---|---|---|---|---|---|
| **Other features** | | | | | | |
| **Temperature compensation** | ✓ | ✓ | ✓ | ✓ | ✓ | • Allows the use of the relays at high temperatures without derating<br>• Prevents premature tripping<br>• Allows compact installation of the control cabinet without distance between the devices/load feeders<br>• Simplifies configuration<br>• Enables space to be saved in the control cabinet |
| **Very high long-term stability** | ✓ | ✓ | ✓ | ✓ | ✓ | • Provides safe protection for the loads even after years of use in harsh operating conditions |
| **Wide setting ranges** | -- | ✓ (1:4) | ✓ (1:4) | ✓ (1:10) | ✓ (1:10) | • Minimize the configuring outlay and costs<br>• Minimize storage overhead, storage costs, and tied-up capital |
| **Fixed trip class** | CLASS 10, CLASS 10A | 3RB30: CLASS 10E or CLASS 20E | 3RB20: CLASS 10E or CLASS 20E | -- | -- | • Optimum motor protection for standard starts |
| **CLASS 5E, 10E, 20E, 30E trip classes adjustable on the device** | -- | ✓ (only 3RB31) | ✓ (only 3RB21) | ✓ | ✓ | • Enable solutions for very fast starting motors requiring special protection (e.g. Ex motors)<br>• Enable heavy starting solutions<br>• Reduce the number of variants<br>• Minimize the configuring outlay and costs<br>• Minimize storage overhead, storage costs, and tied-up capital |
| **Low power loss** | -- | ✓ | ✓ | ✓ | ✓ | • Reduces power consumption and energy costs (up to 98% less power is used than for thermal overload relays)<br>• Minimizes temperature rises of the contactor and control cabinet – in some cases this may eliminate the need for control cabinet cooling<br>• Direct mounting to contactor saves space, even for high motor currents (i.e. no heat decoupling is required) |
| **Internal power supply** | --[1)] | ✓ | ✓ | -- | -- | • Eliminates the need for configuration and connecting an additional control circuit |
| **Supplied from an external source via IO-Link** | -- | -- | -- | -- | ✓ | • Eliminates the need for configuration and connecting an additional control circuit |

✓ Available
-- Not available

[1)] SIRIUS 3RU21 thermal overload relays use a bimetal contactor and therefore do not require a control supply voltage.

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## General data

| Features | 3RU21 | 3RB30/3RB31 | 3RB20/3RB21 | 3RB22/3RB23 | 3RB24 | Benefits |
|---|---|---|---|---|---|---|
| **Other features (continued)** | | | | | | |
| **Overload warning** | -- | -- | -- | ✓ | ✓ | • Indicates imminent tripping of the relay directly on the device due to overload, phase asymmetry or phase failure through flickering of the LEDs or in the case of the 3RB24 as a signal through IO-Link<br>• Allows the imminent tripping of the relay to be signaled<br>• Allows measures to be taken in time in the event of inverse-time delayed overloading for an extended period over the current limit<br>• Eliminates the need for an additional device<br>• Saves space in the control cabinet<br>• Reduces wiring outlay and costs |
| **Analog output** | -- | -- | -- | ✓ | ✓ | • Allows the output of an analog output signal for actuating moving-coil measuring instruments, feeding programmable logic controllers or transfer to bus systems<br>• Eliminates the need for an additional instrument transformer and signal converter<br>• Saves space in the control cabinet<br>• Reduces wiring outlay and costs |

✓ Available
-- Not available

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***Overview of overload relays – matching contactors***

| | Overload relays | Current measure-ment | Current range | **Contactors** (type, size, rating in kW) **3RT201.** | **3RT202.** | **3RT203.** | **3RT204.** | **3RT105.** | **3RT106.** | **3RT107.** | **3TF68/3TF69** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | S00 | S0 | S2 | S3 | S6 | S10 | S12 | 14 |
| | Type | | A | 3/4/5.5/7.5 | 5.5/7.5/11/15/18.5 | 15/18.5/22/30/37 | 37/45/55 | 55/75/90 | 110/132/160 | 200/250 | 375/450 |
| **SIRIUS 3RU21 thermal overload relays** | | | | | | | | | | | |
| 3RU21 | 3RU211 | Integrated | 0.11 … 16 | ✓ | -- | -- | -- | -- | -- | -- | -- |
| | 3RU212 | Integrated | 1.8 … 40 | -- | ✓ | -- | -- | -- | -- | -- | -- |
| | 3RU213 | Integrated | 11 … 80 | -- | -- | ✓ | -- | -- | -- | -- | -- |
| | 3RU214 | Integrated | 28 ... 100 | -- | -- | -- | ✓ | -- | -- | -- | -- |
| **SIRIUS 3RB30 electronic overload relays[1)]** | | | | | | | | | | | |
| 3RB30 | 3RB301 | Integrated | 0.1 … 16 | ✓ | -- | -- | -- | -- | -- | -- | -- |
| | 3RB302 | Integrated | 0.1 … 40 | -- | ✓ | -- | -- | -- | -- | -- | -- |
| | 3RB303 | Integrated | 12.5 … 80 | -- | -- | ✓ | -- | -- | -- | -- | -- |
| | 3RB304 | Integrated | 32 ... 115 | -- | -- | -- | ✓ | -- | -- | -- | -- |
| **SIRIUS 3RB31 electronic overload relays[1)]** | | | | | | | | | | | |
| 3RB31 | 3RB311 | Integrated | 0.1 … 16 | ✓ | -- | -- | -- | -- | -- | -- | -- |
| | 3RB312 | Integrated | 0.1 … 40 | -- | ✓ | -- | -- | -- | -- | -- | -- |
| | 3RB313 | Integrated | 12.5 … 80 | -- | -- | ✓ | -- | -- | -- | -- | -- |
| | 3RB314 | Integrated | 32 ... 115 | -- | -- | -- | ✓ | -- | -- | -- | -- |
| **SIRIUS 3RB20 electronic overload relays[1)]** | | | | | | | | | | | |
| 3RB20 | 3RB205 | Integrated | 50 … 200 | -- | -- | -- | -- | ✓ | -- | -- | -- |
| | 3RB206 | Integrated | 55 … 630 | -- | -- | -- | -- | -- | ✓ | ✓ | ✓ |
| | 3RB201 + 3UF18 | Integrated | 630 … 820 | -- | -- | -- | -- | -- | -- | -- | ✓ |
| **SIRIUS 3RB21 electronic overload relays[1)]** | | | | | | | | | | | |
| 3RB21 | 3RB215 | Integrated | 50 … 200 | -- | -- | -- | -- | ✓ | -- | -- | -- |
| | 3RB216 | Integrated | 55 … 630 | -- | -- | -- | -- | -- | ✓ | ✓ | ✓ |
| | 3RB211 + 3UF18 | Integrated | 630 … 820 | -- | -- | -- | -- | -- | -- | -- | ✓ |
| **SIRIUS 3RB22 to 3RB24 electronic overload relays[1)]** | | | | | | | | | | | |
| 3RB22, 3RB23, 3RB24 | 3RB2283/ 3RB2383/ 3RB2483 + | 3RB2906 | 0.3 … 25 | ✓ | ✓ | -- | -- | -- | -- | -- | -- |
| | | 3RB2906 | 10 … 100 | ✓ | ✓ | ✓ | ✓ | -- | -- | -- | -- |
| | | 3RB2956 | 20 … 200 | -- | ✓ | ✓ | ✓ | ✓ | -- | -- | -- |
| | | 3RB2966 | 63 … 630 | -- | -- | -- | -- | -- | ✓ | ✓ | ✓ |
| | | 3RB2906 + 3UF18 | 630 … 820 | -- | -- | -- | -- | -- | -- | -- | ✓ |

✓ Can be used
-- Cannot be used

[1)] "Technical specifications" for the use of overload relays with trip class ≥ CLASS 20E, see "Short-circuit protection with fuses for motor feeders" in the Configuration Manual.

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## General data

### *Connection methods*

3RU2 thermal overload relays

- Sizes S00 and S0:
  - Main and auxiliary circuit: Either screw or spring-loaded terminals
- Sizes S2 and S3:
  - Main circuit: Screw terminals with box terminal
  - Auxiliary circuit: Either screw or spring-loaded terminals

3RB3 electronic overload relays

- Sizes S00 and S0:
  - Main and auxiliary circuit: Either screw or spring-loaded terminals
- Sizes S2 and S3:
  - Main circuit: Screw terminals with box terminal or as straight-through transformer
  - Auxiliary circuit: Either screw or spring-loaded terminals

3RB2 electronic overload relays

3RB20 and 3RB21 overload relays:

- Size S6:
  - Main circuit: With busbar connection or as straight-through transformer
  - Auxiliary circuit: Either screw or spring-loaded terminals
- Sizes S10/S12:
  - Main circuit: With busbar connection
  - Auxiliary circuit: Either screw or spring-loaded terminals

3RB22 to 3RB24 evaluation modules:

- Screw or spring-loaded terminals

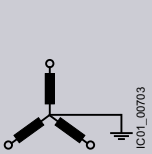
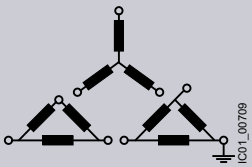
3RB29 current measuring modules:

- Up to size S3: Straight-through transformers
- As from size S6:
  - Main circuit: With busbar connection
  - Auxiliary circuit: Either screw or spring-loaded terminals

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals |
| | Busbar connections |
| | Straight-through transformers |
| | The various terminals and straight-through transformers are indicated in the corresponding tables by the symbols shown on orange backgrounds. |

### *Voltage data*

The data for 3-phase power systems according to IEC 60947-4-1 are valid for the following line system configurations:

| Voltage $U_e$ | Line system configurations | |
|---|---|---|
| | Three-phase four-wire networks   | Three-phase three-wire networks   |
| V | V | V |
| 230 | -- | 230 |
| 400 | 230/400 | 400 |
| 440 | 260/440 | 440 |
| 500 | -- | 500 |
| 690 | 400/690 | 690 (only as from size S3) |
| 1 000 | -- | 1 000 |

-- Not specified

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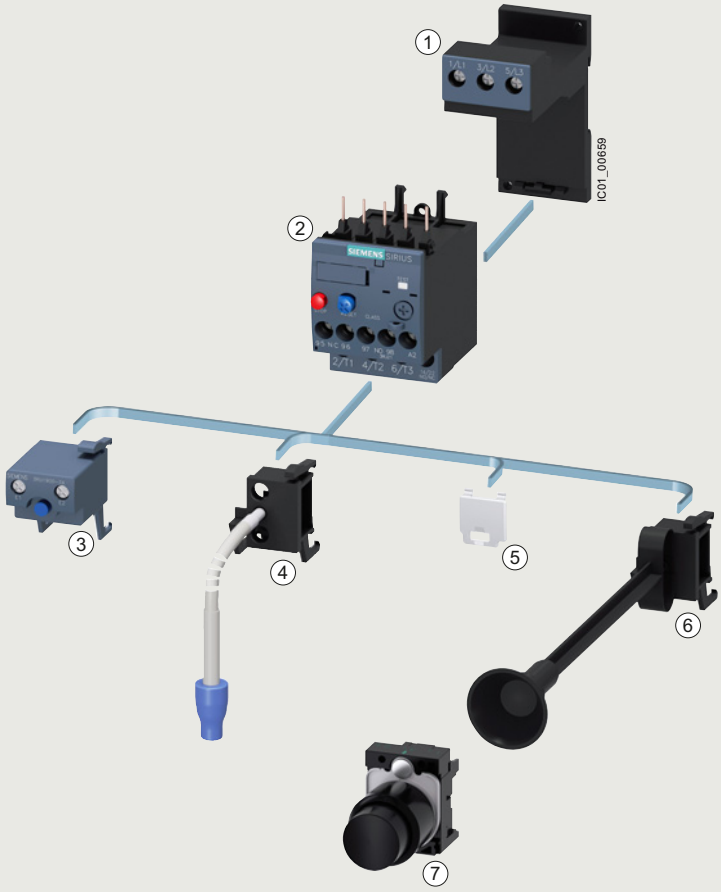
## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-control | Application Manual for switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820 |
| Industry Mall, see www.siemens.com/product?3RU2 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=ThermalOverloadRelay | Characteristics and certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16271 |
| Conversion tool, see www.siemens.com/conversion-tool | |




1. Stand-alone assembly support for 3RU2 and 3RB3
2. 3RU21 thermal overload relay Sizes S00 to S3

Mountable accessories

3. Module for Remote RESET
4. Cable release with holder for RESET
5. Sealable cover
6. Mechanical RESET
7. Pushbutton

Mountable accessories for 3RU thermal overload relay

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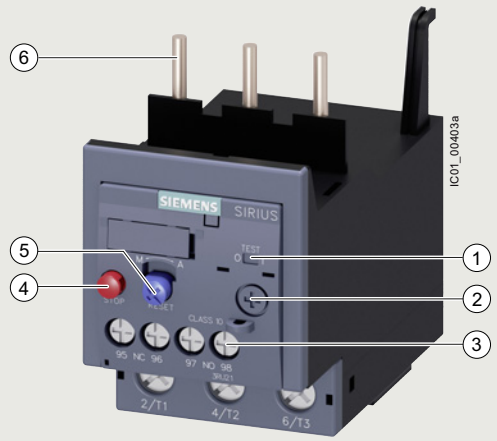
## 3RU2 for standard applications




(1) Switch position indicator and TEST function of the wiring:
Indicates a trip and enables the wiring test.

(2) Motor current setting:
Setting the device to the rated motor current is easy with the large rotary knob.

(3) Connecting terminals:
Depending on the device version, the connecting terminals are screw terminals or spring-loaded terminals for the main and auxiliary circuits.

(4) STOP button:
If the STOP button is pressed, the NC contact is opened. This switches off the contactor downstream. The NC contact is closed again when the button is released.

(5) Selector switch for Manual/Automatic RESET and RESET button:
With this switch you can choose between Manual and Automatic RESET. A device set to Manual RESET can be reset locally by pressing the RESET button. A Remote RESET is possible using the RESET modules (accessories), which are independent of size.

(6) Connection for mounting onto contactors:
Optimally adapted in electrical, mechanical and design terms to the contactors. The overload relay can be connected directly to the contactor using these pins. Stand-alone installation is possible as an alternative (in conjunction with a terminal support for stand-alone installation).

A sealable transparent cover can be optionally mounted (accessory).
It secures the motor current setting against adjustment.

SIRIUS 3RU2136-4.B0 thermal overload relay

3RU21 thermal overload relays up to 100 A have been designed to provide inverse-time delayed protection for loads with normal starting against impermissibly high temperature rises due to overload or phase failure.

An overload or phase failure results in an increase of the motor current beyond the set rated motor current. Via heating elements, this current rise heats up the bimetal strips inside the device which then bend and as a result trigger the auxiliary contacts by means of a tripping mechanism. The auxiliary contacts then switch off the load by means of a contactor. The break time depends on the ratio between the tripping current and the current setting $I_e$ and is stored in the form of a long-term stable tripping characteristic curve, see Characteristic curves.

The "tripped" status is signaled by means of a switch position indicator. The relay is reset manually or automatically after a recovery time has elapsed.

The 3RU2 thermal overload relays are suitable for operation with frequency converters.

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials. They comply with all important worldwide standards and approvals.

### *Use in hazardous areas*

The 3RU2 overload relays are certified in accordance with both the European Explosion Protection Directive (ATEX) and the International Explosion Protection Standard (IECEx), see Certificates.

### *Article number scheme*

| Product versions | | Article number |
|---|---|---|
| **Thermal overload relays** | | **3RU2** □ □ □ – □ □ □ □ |
| Device type | e.g. 1 = CLASS 10, 1 NO + 1 NC | □ |
| Size, rated operational current and power | e.g. 16 = 16 A (7.5 kW) for size S00 | □ □ |
| Setting range for overload release | e.g. 0A = 0.11 ... 0.16 A | □ □ |
| Connection methods | e.g. B = screw terminals | □ |
| Installation type | e.g. 0 = mounting on contactor | □ |
| Example | | **3RU2 1 1 6 – 0 A B 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Benefits

The most important features and benefits of the 3RU21 thermal overload relays are listed in the overview table (see "General data", page 7/76 onwards).

## Application

### *Industries*

The 3RU21 thermal overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed protection of their electrical loads (e.g. motors) under normal starting conditions (CLASS 10, 10A).

### *Application*

The 3RU21 thermal overload relays have been designed for the protection of three-phase and single-phase AC and DC motors.

If single-phase AC or DC loads are to be protected by the 3RU21 thermal overload relays, all three bimetal strips must be heated. For this purpose, all main conducting paths of the relay must be connected in series.

### *Ambient conditions*

3RU21 thermal overload relays compensate temperature in the temperature range from -40 to +60 °C according to IEC 60947-4-1. At temperatures from +60 to +70 °C, the upper set value of the setting range has to be reduced by a specific factor.

### *Use of SIRIUS protection devices in conjunction with IE3 and IE4 motors*

Note:

For the use of 3RU21 thermal overload relays in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

## Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164 |
| Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188 | Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16270/td |

The following technical information is intended to provide an initial overview of the various types of devices and functions.

| **Type** | | **3RU2116** | **3RU2126** | **3RU2136** | **3RU2146** |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| Dimensions (W x H x D) (overload relay with stand-alone installation support) | | | | | |
| • Screw terminals | mm | 45 x 89 x 80 | 45 x 97 x 95 | 55 x 105 x 117 | 70 x 106 x 124 |
| • Spring-loaded terminals | mm | 45 x 102 x 79 | 45 x 114 x 95 | 55 x 105 x 117 | 70 x 106 x 124 |
| **General data** | | | | | |
| **Tripping in the event of** | | Overload and phase failure | | | |
| **Trip class** according to IEC 60947-4-1 | CLASS | 10 | | 10, 10A | |
| **Phase failure sensitivity** | | Yes | | | |
| **Overload warning** | | No | | | |
| **Reset and recovery** | | | | | |
| • Reset options after tripping | | Manual, Auto and Remote RESET (Remote RESET in conjunction with the appropriate accessories) | | | |
| • Recovery time | | | | | |
| - For Automatic RESET | min. | Depends on the strength of the tripping current and characteristic | | | |
| - For Manual RESET | min. | Depends on the strength of the tripping current and characteristic | | | |
| - For Remote RESET | min. | Depends on the strength of the tripping current and characteristic | | | |
| **Features** | | | | | |
| • Display of operating state on device | | Yes, by means of TEST function/switch position indicator slide | | | |
| • TEST function | | Yes | | | |
| • RESET button | | Yes | | | |
| • STOP button | | Yes | | | |
| **Protection of motors in hazardous environments** | | | | | |
| • Certificate of suitability/explosion protection type according to ATEX Directive 2014/34/EU | | DMT 98 ATEX G 001 Ex II (2) GD | | | |
| • According to international standard IECEx | | IECEx BVS 15.0046 see https://support.industry.siemens.com/cs/ww/en/ps/16270/cert | | | |

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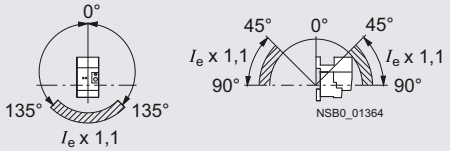
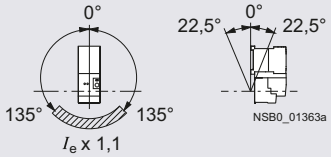
## 3RU2 for standard applications

| **Type** | | **3RU2116** | **3RU2126** | **3RU2136** | **3RU2146** |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| Dimensions (W x H x D) (overload relay with stand-alone installation support) | | | | | |
| • Screw terminals | mm | 45 x 89 x 80 | 45 x 97 x 95 | 55 x 105 x 117 | 70 x 106 x 124 |
| • Spring-loaded terminals | mm | 45 x 102 x 79 | 45 x 114 x 95 | 55 x 105 x 117 | 70 x 106 x 124 |
| **General data (continued)** | | | | | |
| **Ambient temperature** | | | | | |
| • Storage/transport | °C | -55 ... +80 | | | |
| • Operation | °C | -40 ... +70 | | | |
| • Temperature compensation | °C | Up to +60 | | | |
| • Permissible rated current at | | | | | |
| - Temperature inside control cabinet 60 °C | % | 100 (current reduction is required above +60 °C) | | | |
| - Temperature inside control cabinet 70 °C | % | 87 | | | |
| **Repeat terminals** | | | | | |
| • Coil repeat terminals | | Yes | Not required | | |
| • Auxiliary contact repeat terminals | | Yes | Not required | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 (screw terminals and spring-loaded terminals) | | | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front (screw and spring-loaded terminals) | | | |
| **Shock resistance with sine** according to IEC 60068-2-27 | *g*/ms | 15/11 (auxiliary contacts 95/96 and 97/98: 8 *g*/11 ms) | | | |
| **Electromagnetic compatibility (EMC)** | | | | | |
| • Interference immunity | | Not relevant | | | |
| • Emitted interference | | Not relevant | | | |
| **Installation altitude above sea level** | m | Up to 2 000 | | | |
| **Mounting position** | | The diagrams show the permissible mounting positions for mounting on contactors and stand-alone installation. For mounting position in the hatched area, a setting correction of 10% must be implemented. | | | |
| **Type of mounting** | | For mounting on contactor or stand-alone installation with terminal support, screw and snap-on mounting on DIN rail. | | | |

Stand-alone installation:




Contactor + overload relay:



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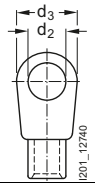
| **Type** | | **3RU2116** | **3RU2126** | **3RU2136** | **3RU2146** |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| **Main circuit** | | | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 690 | | | 1 000 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | | | 8 |
| **Rated operational voltage $U_e$** | V | 690 | | | |
| **Type of current** | | | | | |
| • Direct current | | Yes | | | |
| • Alternating current | | Yes, frequency range up to 400 Hz | | | |
| **Current setting** | A | 0.11 ... 0.16 to 11 ... 16 | 1.8 ... 2.5 to 34 ... 40 | 11 ... 16 to 70 ... 80 | 28 ... 40 to 80 ... 100 |
| | A | | | | |
| **Power loss per unit (max.)** | W | 4.8 ... 7.5 | 5.7 ... 9.6 | 10.5 ... 18.9 | 13.5 ... 21 |
| **Short-circuit protection** | | | | | |
| • With fuse without contactor | | See "Selection and ordering data", pages 7/89 ... 7/92 | | | |
| • With fuse and contactor | | "Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders", see Configuration Manual. | | | |
| **Protective separation between main and auxiliary conducting paths** According to IEC 60947-1 | | | | | |
| • Screw terminals or ring cable lug connections | V | 440 | 690: Setting range ≤ 25 A | 690 | |
| • Spring-loaded terminals | V | 440 | 440: Setting range > 25 A | 690 | |
| **Conductor cross-sections of main circuit** | | | | | |
| **Connection type** | | **Screw terminals** | | | **Screw terminals with box terminal** |
| **Terminal screw** | | M3, Pozidriv size 2 | M4, Pozidriv size 2 | M6, Pozidriv size 2 | 4 mm Allen screw |
| **Operating devices** | mm | ⌀ 5 ... 6 | ⌀ 5 ... 6 | ⌀ 5 ... 6 | 4 mm Allen screw |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 | 2 ... 2.5 | 3 ... 4.5 | 4.5 ... 6 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1], max. 2 x 4 | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 10)[1] | 2 x (2.5 ... 35)[1], 1 x (2.5 ... 50)[1] | 2 x (2.5 ... 16)[1], 2 x (10 ... 50)[1], 1 x (10 ... 70)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 6)[1], max. 1 x 10 | 2 x (1 ... 25)[1], 1 x (1 ... 35)[1] | 2 x (2.5 ... 35)[1], 1 x (2.5 ... 50)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1], 2 x (18 ... 14)[1], 2 x 12 | 2 x (16 ... 12)[1], 2 x (14 ... 8)[1] | 2 x (18 ... 2)[1], 1 x (18 ... 1)[1] | 2 x (10 ... 1/0)[1], 1 x (10 ... 2/0)[1] |
| **Removable box terminals**[2] | | | | | |
| • With copper bars[3] | mm | -- | -- | -- | 2 x 12 x 4 |
| • With cable lugs[4] | | | | | |
| - Terminal screw | | -- | -- | -- | M6 |
| - Prescribed tightening torque | Nm | -- | -- | -- | 4.5 ... 6 |
| - Usable ring cable lugs | mm | -- | -- | -- | $d_2$ = min. 6.3 $d_3$ = max. 19 |
| **Connection type** | | **Spring-loaded terminals** | | | |
| **Operating devices** | mm | 3.0 x 0.5 and 3.5 x 0.5 | | | |
| **Conductor cross-sections (min./max.),** one conductor can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 1 x (0.5 ... 4) | 1 x (1 ... 10) | -- | |
| • Finely stranded without end sleeve | $mm^2$ | 1 x (0.5 ... 2.5) | 1 x (1 ... 6) | -- | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 1 x (0.5 ... 2.5) | 1 x (1 ... 6) | -- | |
| • AWG cables, solid or stranded | AWG | 1 x (20 ... 12) | 1 x (18 ... 8) | -- | |
| • Max. external diameter of the conductor insulation | mm | 3.6 | 6.4 | -- | |




1) If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

2) Cable lug and busbar connection possible after removing the box terminals.

3) If bars larger than 12 mm x 10 mm are connected, a 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/94.

4) If conductors larger than 25 $mm^2$ are connected, the 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/94.

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## 3RU2 for standard applications

| Type | | 3RU2116 | 3RU2126 | 3RU2136 | 3RU2146 |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| **Auxiliary circuit** | | | | | |
| **Number of NO contacts** | | 1 | | | |
| **Number of NC contacts** | | 1 | | | |
| **Auxiliary contacts – Assignment** | | 1 NO for the signal "tripped";<br>1 NC for disconnecting the contactor | | | |
| **Rated insulation voltage $U_i$**<br>(pollution degree 3) | V | 690 | | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | | | |
| **Contact rating of the auxiliary contacts** | | | | | |
| • NC, NO contacts with alternating current AC-15, rated operational current $I_e$ at $U_e$ | | | | | |
| - 24 V | A | 3 | | | |
| - 120 V | A | 3 | | | |
| - 125 V | A | 3 | | | |
| - 230 V | A | 2 | | | |
| - 400 V | A | 1 | | | |
| - 600 V | A | 0.75 | | | |
| - 690 V | A | 0.75 | | | |
| • NC, NO contacts with direct current DC-13, rated operational current $I_e$ at $U_e$ | | | | | |
| - 24 V | A | 1 | | | |
| - 110 V | A | 0.22 | | | |
| - 125 V | A | 0.22 | | | |
| - 220 V | A | 0.11 | | | |
| • Contact reliability (suitability for PLC control; 17 V, 5 mA) | | Yes | | | |
| **Short-circuit protection** | | | | | |
| • With fuse | | | | | |
| - Operational class gG | A | 6 | | | |
| - Quick | A | 10 | | | |
| • With miniature circuit breaker (C characteristic) | A | 6 (up to $I_k \leq 0.5$ kA; $U \leq 260$ V) | | | |
| **Reliable operational voltage for protective separation between auxiliary conducting paths**<br>According to IEC 60947-1 | V | 440 | | | |
| **CSA, UL and UR rated data** | | | | | |
| **Auxiliary circuit – Switching capacity** | | B600, R300 | | | |
| **Conductor cross-sections for auxiliary circuit** | | | | | |
| **Connection type** | | **Screw terminals** | | | |
| **Terminal screw** | | M3, Pozidriv size 2 | | | |
| **Operating devices** | mm | ⌀ 5 ... 6 | | | |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 | | | |
| **Conductor cross-sections (min./max.),**<br>one or two conductors can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] | | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1], 2 x (18 ... 14)[1] | | | |
| **Connection type** | | **Spring-loaded terminals** | | | |
| **Operating devices** | mm | 3.0 x 0.5 and 3.5 x 0.5 | | | |
| **Conductor cross-sections (min./max.),**<br>one or two conductors can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 2.5) | | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5) | | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) | | | |
| • Max. external diameter of the conductor insulation | mm | 3.6 | | | |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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## Selection and ordering data

### *3RU21 thermal overload relays for mounting on contactor[1], sizes S00 and S0, CLASS 10*

Features and technical specifications:

- Connection methods
  Main and auxiliary circuit: Either screw or spring-loaded terminals
- Overload and phase failure protection
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function
- STOP button
- Sealable covers (optional accessory)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41F

3RU2116-..B0

3RU2116-..C0

3RU2126-..B0

3RU2126-..C0

| Size contactor | Trip class | Rated power for three-phase motors, rated value[2] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[3] | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | Article No. | Price per PU |
| | CLASS | kW | A | A | | | | |
| **Size S00** | | | | | | | | |
| S00 | 10 | 0.04 | 0.11 ... 0.16 | 0.5 | **3RU2116-0AB0** | | **3RU2116-0AC0** | |
| | 10 | 0.06 | 0.14 ... 0.2 | 1 | **3RU2116-0BB0** | | **3RU2116-0BC0** | |
| | 10 | 0.06 | 0.18 ... 0.25 | 1 | **3RU2116-0CB0** | | **3RU2116-0CC0** | |
| | 10 | 0.09 | 0.22 ... 0.32 | 1.6 | **3RU2116-0DB0** | | **3RU2116-0DC0** | |
| | 10 | 0.09 | 0.28 ... 0.4 | 2 | **3RU2116-0EB0** | | **3RU2116-0EC0** | |
| | 10 | 0.12 | 0.35 ... 0.5 | 2 | **3RU2116-0FB0** | | **3RU2116-0FC0** | |
| | 10 | 0.18 | 0.45 ... 0.63 | 2 | **3RU2116-0GB0** | | **3RU2116-0GC0** | |
| | 10 | 0.18 | 0.55 ... 0.8 | 4 | **3RU2116-0HB0** | | **3RU2116-0HC0** | |
| | 10 | 0.25 | 0.7 ... 1 | 4 | **3RU2116-0JB0** | | **3RU2116-0JC0** | |
| | 10 | 0.37 | 0.9 ... 1.25 | 4 | **3RU2116-0KB0** | | **3RU2116-0KC0** | |
| | 10 | 0.55 | 1.1 ... 1.6 | 6 | **3RU2116-1AB0** | | **3RU2116-1AC0** | |
| | 10 | 0.75 | 1.4 ... 2 | 6 | **3RU2116-1BB0** | | **3RU2116-1BC0** | |
| | 10 | 0.75 | 1.8 ... 2.5 | 10 | **3RU2116-1CB0** | | **3RU2116-1CC0** | |
| | 10 | 1.1 | 2.2 ... 3.2 | 10 | **3RU2116-1DB0** | | **3RU2116-1DC0** | |
| | 10 | 1.5 | 2.8 ... 4 | 16 | **3RU2116-1EB0** | | **3RU2116-1EC0** | |
| | 10 | 1.5 | 3.5 ... 5 | 20 | **3RU2116-1FB0** | | **3RU2116-1FC0** | |
| | 10 | 2.2 | 4.5 ... 6.3 | 20 | **3RU2116-1GB0** | | **3RU2116-1GC0** | |
| | 10 | 3 | 5.5 ... 8 | 25 | **3RU2116-1HB0** | | **3RU2116-1HC0** | |
| | 10 | 4 | 7 ... 10 | 35 | **3RU2116-1JB0** | | **3RU2116-1JC0** | |
| | 10 | 5.5 | 9 ... 12.5 | 35 | **3RU2116-1KB0** | | **3RU2116-1KC0** | |
| | 10 | 7.5 | 11 ... 16 | 40 | **3RU2116-4AB0** | | **3RU2116-4AC0** | |
| **Size S0** | | | | | | | | |
| S0 | 10 | 0.75 | 1.8 ... 2.5 | 10 | **3RU2126-1CB0** | | **3RU2126-1CC0** | |
| | 10 | 1.1 | 2.2 ... 3.2 | 10 | **3RU2126-1DB0** | | **3RU2126-1DC0** | |
| | 10 | 1.5 | 2.8 ... 4 | 16 | **3RU2126-1EB0** | | **3RU2126-1EC0** | |
| | 10 | 1.5 | 3.5 ... 5 | 20 | **3RU2126-1FB0** | | **3RU2126-1FC0** | |
| | 10 | 2.2 | 4.5 ... 6.3 | 20 | **3RU2126-1GB0** | | **3RU2126-1GC0** | |
| | 10 | 3 | 5.5 ... 8 | 25 | **3RU2126-1HB0** | | **3RU2126-1HC0** | |
| | 10 | 4 | 7 ... 10 | 35 | **3RU2126-1JB0** | | **3RU2126-1JC0** | |
| | 10 | 5.5 | 9 ... 12.5 | 35 | **3RU2126-1KB0** | | **3RU2126-1KC0** | |
| | 10 | 7.5 | 11 ... 16 | 40 | **3RU2126-4AB0** | | **3RU2126-4AC0** | |
| | 10 | 7.5 | 14 ... 20 | 50 | **3RU2126-4BB0** | | **3RU2126-4BC0** | |
| | 10 | 11 | 17 ... 22 | 63 | **3RU2126-4CB0** | | **3RU2126-4CC0** | |
| | 10 | 11 | 20 ... 25 | 63 | **3RU2126-4DB0** | | **3RU2126-4DC0** | |
| | 10 | 15 | 23 ... 28 | 63 | **3RU2126-4NB0** | | **3RU2126-4NC0** | |
| | 10 | 15 | 27 ... 32 | 80 | **3RU2126-4EB0** | | **3RU2126-4EC0** | |
| | 10 | 18.5 | 30 ... 36 | 80 | **3RU2126-4PB0** | | **3RU2126-4PC0** | |
| | 10 | 18.5 | 34 ... 40 | 80 | **3RU2126-4FB0** | | **3RU2126-4FC0** | |

1) With the appropriate terminal supports (see page 7/93), the 3RU2 overload relays for mounting on contactors can also be installed as stand-alone units.

2) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

3) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3RU2 for standard applications *IE3/IE4* ready

### *3RU21 thermal overload relays for mounting on contactor*[1], sizes *S2 and S3, CLASS 10 or 10A*

Features and technical specifications:

- Connection methods
  - Main circuit: Screw terminals with box terminal
  - Auxiliary circuit: Either screw or spring-loaded terminals
- Overload and phase failure protection
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function
- STOP button
- Sealable covers (optional accessory)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41F

3RU2136-..B0

3RU2136-..D0

3RU2146-4.B0

3RU2146-4.D0

| Size contactor | Trip class | Rated power for three-phase motors, rated value[2] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[3] | **Screw terminals** | | **Spring-loaded terminals** (on auxiliary current side) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | Article No. | Price per PU |
| | CLASS | kW | A | A | | | | |
| **Size S2** | | | | | | | | |
| S2 | 10 | 3 | 5.5 ... 8 | 25 | **3RU2136-1HB0** | | **3RU2136-1HD0** | |
| | 10 | 4 | 7 ... 10 | 35 | **3RU2136-1JB0** | | **3RU2136-1JD0** | |
| | 10 | 5.5 | 9 ... 12.5 | 35 | **3RU2136-1KB0** | | **3RU2136-1KD0** | |
| | 10 | 7.5 | 11 ... 16 | 40 | **3RU2136-4AB0** | | **3RU2136-4AD0** | |
| | 10 | 7.5 | 14 ... 20 | 50 | **3RU2136-4BB0** | | **3RU2136-4BD0** | |
| | 10 | 11 | 18 ... 25 | 63 | **3RU2136-4DB0** | | **3RU2136-4DD0** | |
| | 10 | 15 | 22 ... 32 | 80 | **3RU2136-4EB0** | | **3RU2136-4ED0** | |
| | 10 | 18.5 | 28 ... 40 | 80 | **3RU2136-4FB0** | | **3RU2136-4FD0** | |
| | 10 | 22 | 36 ... 45 | 100 | **3RU2136-4GB0** | | **3RU2136-4GD0** | |
| | 10 | 22 | 40 ... 50 | 100 | **3RU2136-4HB0** | | **3RU2136-4HD0** | |
| | 10 | 30 | 47 ... 57 | 100 | **3RU2136-4QB0** | | **3RU2136-4QD0** | |
| | 10 | 30 | 54 ... 65 | 125 | **3RU2136-4JB0** | | **3RU2136-4JD0** | |
| | 10A | 37 | 62 ... 73 | 160 | **3RU2136-4KB0** | | **3RU2136-4KD0** | |
| | 10A | 37 | 70 ... 80 | 160 | **3RU2136-4RB0** | | **3RU2136-4RD0** | |
| **Size S3** | | | | | | | | |
| S3 | 10 | 18.5 | 28 ... 40 | 80 | **3RU2146-4FB0** | | **3RU2146-4FD0** | |
| | 10 | 22 | 36 ... 50 | 125 | **3RU2146-4HB0** | | **3RU2146-4HD0** | |
| | 10 | 30 | 45 ... 63 | 125 | **3RU2146-4JB0** | | **3RU2146-4JD0** | |
| | 10 | 37 | 57 ... 75 | 160 | **3RU2146-4KB0** | | **3RU2146-4KD0** | |
| | 10 | 45 | 70 ... 90 | 160 | **3RU2146-4LB0** | | **3RU2146-4LD0** | |
| | 10 | 45 | 80 ... 100[4] | 200 | **3RU2146-4MB0** | | **3RU2146-4MD0** | |

[1] With the appropriate terminal supports (see page 7/93), the 3RU2 overload relays for mounting on contactors can also be installed as stand-alone units.

[2] Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

[3] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

[4] For overload relays > 100 A, see 3RB2 electronic overload relays, page 7/107 onwards.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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***3RU21 thermal overload relays for stand-alone installation, sizes S00 and S0, CLASS 10***

Features and technical specifications:

- Connection methods
  Main and auxiliary circuit: Either screw or spring-loaded terminals
- Overload and phase failure protection
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function
- STOP button
- Sealable covers (optional accessory)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41F

3RU2116-..B1

3RU2116-..C1

3RU2126-4.B1

3RU2126-4.C1

| Size contactor | Trip class | Rated power for three-phase motors, rated value[1] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[2] | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | Article No. | Price per PU |
| | CLASS | kW | A | A | | | | |
| **Size S00** | | | | | | | | |
| S00 | 10 | 0.04 | 0.11 ... 0.16 | 0.5 | **3RU2116-0AB1** | | **3RU2116-0AC1** | |
| | 10 | 0.06 | 0.14 ... 0.2 | 1 | **3RU2116-0BB1** | | **3RU2116-0BC1** | |
| | 10 | 0.06 | 0.18 ... 0.25 | 1 | **3RU2116-0CB1** | | **3RU2116-0CC1** | |
| | 10 | 0.09 | 0.22 ... 0.32 | 1.6 | **3RU2116-0DB1** | | **3RU2116-0DC1** | |
| | 10 | 0.09 | 0.28 ... 0.4 | 2 | **3RU2116-0EB1** | | **3RU2116-0EC1** | |
| | 10 | 0.12 | 0.35 ... 0.5 | 2 | **3RU2116-0FB1** | | **3RU2116-0FC1** | |
| | 10 | 0.18 | 0.45 ... 0.63 | 2 | **3RU2116-0GB1** | | **3RU2116-0GC1** | |
| | 10 | 0.18 | 0.55 ... 0.8 | 4 | **3RU2116-0HB1** | | **3RU2116-0HC1** | |
| | 10 | 0.25 | 0.7 ... 1 | 4 | **3RU2116-0JB1** | | **3RU2116-0JC1** | |
| | 10 | 0.37 | 0.9 ... 1.25 | 4 | **3RU2116-0KB1** | | **3RU2116-0KC1** | |
| | 10 | 0.55 | 1.1 ... 1.6 | 6 | **3RU2116-1AB1** | | **3RU2116-1AC1** | |
| | 10 | 0.75 | 1.4 ... 2 | 6 | **3RU2116-1BB1** | | **3RU2116-1BC1** | |
| | 10 | 0.75 | 1.8 ... 2.5 | 10 | **3RU2116-1CB1** | | **3RU2116-1CC1** | |
| | 10 | 1.1 | 2.2 ... 3.2 | 10 | **3RU2116-1DB1** | | **3RU2116-1DC1** | |
| | 10 | 1.5 | 2.8 ... 4 | 16 | **3RU2116-1EB1** | | **3RU2116-1EC1** | |
| | 10 | 1.5 | 3.5 ... 5 | 20 | **3RU2116-1FB1** | | **3RU2116-1FC1** | |
| | 10 | 2.2 | 4.5 ... 6.3 | 20 | **3RU2116-1GB1** | | **3RU2116-1GC1** | |
| | 10 | 3 | 5.5 ... 8 | 25 | **3RU2116-1HB1** | | **3RU2116-1HC1** | |
| | 10 | 4 | 7 ... 10 | 35 | **3RU2116-1JB1** | | **3RU2116-1JC1** | |
| | 10 | 5.5 | 9 ... 12.5 | 35 | **3RU2116-1KB1** | | **3RU2116-1KC1** | |
| | 10 | 7.5 | 11 ... 16 | 40 | **3RU2116-4AB1** | | **3RU2116-4AC1** | |
| **Size S0** | | | | | | | | |
| S0 | 10 | 7.5 | 14 ... 20 | 50 | **3RU2126-4BB1** | | **3RU2126-4BC1** | |
| | 10 | 11 | 17 ... 22 | 63 | **3RU2126-4CB1** | | **3RU2126-4CC1** | |
| | 10 | 11 | 20 ... 25 | 63 | **3RU2126-4DB1** | | **3RU2126-4DC1** | |
| | 10 | 15 | 23 ... 28 | 63 | **3RU2126-4NB1** | | **3RU2126-4NC1** | |
| | 10 | 15 | 27 ... 32 | 80 | **3RU2126-4EB1** | | **3RU2126-4EC1** | |
| | 10 | 18.5 | 30 ... 36 | 80 | **3RU2126-4PB1** | | **3RU2126-4PC1** | |
| | 10 | 18.5 | 34 ... 40 | 80 | **3RU2126-4FB1** | | **3RU2126-4FC1** | |

[1] Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

[2] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3RU2 for standard applications *IE3/IE4* ready

***3RU21 thermal overload relays for stand-alone installation, sizes S2 and S3, CLASS 10 or 10A***

Features and technical specifications:

- Connection methods
  - Main circuit: Screw terminals with box terminal
  - Auxiliary circuit: Either screw or spring-loaded terminals
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function
- STOP button
- Sealable covers (optional accessory)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41F

3RU2136-4.B1

3RU2136-4.D1

3RU2146-4.B1

3RU2146-4.D1

| Size contactor | Trip class | Rated power for three-phase motors, rated value[1] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[2] | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | Article No. | Price per PU |
| | CLASS | kW | A | A | | | | |
| **Size S2** | | | | | | | | |
| S2 | 10 | 15 | 22 ... 32 | 80 | **3RU2136-4EB1** | | **3RU2136-4ED1** | |
| | 10 | 18.5 | 28 ... 40 | 80 | **3RU2136-4FB1** | | **3RU2136-4FD1** | |
| | 10 | 22 | 36 ... 45 | 100 | **3RU2136-4GB1** | | **3RU2136-4GD1** | |
| | 10 | 22 | 40 ... 50 | 100 | **3RU2136-4HB1** | | **3RU2136-4HD1** | |
| | 10 | 30 | 47 ... 57 | 100 | **3RU2136-4QB1** | | **3RU2136-4QD1** | |
| | 10 | 30 | 54 ... 65 | 125 | **3RU2136-4JB1** | | **3RU2136-4JD1** | |
| | 10A | 37 | 62 ... 73 | 160 | **3RU2136-4KB1** | | **3RU2136-4KD1** | |
| | 10A | 37 | 70 ... 80 | 160 | **3RU2136-4RB1** | | **3RU2136-4RD1** | |
| **Size S3** | | | | | | | | |
| S3 | 10 | 30 | 45 ... 63 | 125 | **3RU2146-4JB1** | | **3RU2146-4JD1** | |
| | 10 | 37 | 57 ... 75 | 160 | **3RU2146-4KB1** | | **3RU2146-4KD1** | |
| | 10 | 45 | 70 ... 90 | 160 | **3RU2146-4LB1** | | **3RU2146-4LD1** | |
| | 10 | 45 | 80 ... 100[3] | 200 | **3RU2146-4MB1** | | **3RU2146-4MD1** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

3) For overload relays > 100 A, see 3RB2 electronic overload relays, page 7/107 onwards.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

The following optional accessories are available for the 3RU21 thermal overload relays:

- Size-specific terminal support for stand-alone installation, in sizes S00 and S0 also with spring-loaded terminals
- Mechanical RESET (for all sizes)
- Cable release for resetting devices which are difficult to access (for all sizes)
- Electrical Remote RESET module in three voltage variants (for all sizes)
- Sealable cover (for all sizes)
- Size-specific terminal covers for devices with screw terminals (box terminals)

## Selection and ordering data

| | Version | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Terminal supports for stand-alone installation** | | | | | | | |
| 3RU2916-3AA01 3RU2916-3AC01 | **Terminal supports for overload relays with screw terminals** | | **Screw terminals** | | | | |
| | For separate mounting of the overload relays; screw and snap-on mounting on DIN rail | S00 | **3RU2916-3AA01** | | 1 | 1 unit | 41F |
| | | S0 | **3RU2926-3AA01** | | 1 | 1 unit | 41F |
| | | S2 | **3RU2936-3AA01** | | 1 | 1 unit | 41F |
| | | S3 | **3RU2946-3AA01** | | 1 | 1 unit | 41F |
| 3RU2926-3AA01 3RU2926-3AC01 | **Terminal supports for overload relays with spring-loaded terminals** | | **Spring-loaded terminals** | | | | |
| | For separate mounting of the overload relays; screw and snap-on mounting on DIN rail | S00 | **3RU2916-3AC01** | | 1 | 1 unit | 41F |
| | | S0 | **3RU2926-3AC01** | | 1 | 1 unit | 41F |
| 3RU2936-3AA01 | | | | | | | |
| 3RU2946-3AA01 | | | | | | | |
| **Mechanical RESET** | | | | | | | |
| 3RU2900-1A | **Resetting plungers, holders and formers** | S00 ... S3 | **3RU2900-1A** | | 1 | 1 unit | 41F |
| 3SU1200-0FB10-0AA0 | **Pushbuttons with extended stroke** (12 mm), IP65, ⌀ 22 mm | S00 ... S3 | **3SU1200-0FB10-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0KG10-0AA0 | **Extension plungers** For compensation of the distance between the pushbutton and the resetting plunger of the relay | S00 ... S3 | **3SU1900-0KG10-0AA0** | | 1 | 1 unit | 41J |

7

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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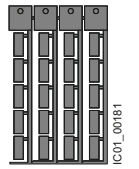
## Accessories

| | Version | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Cable releases with holder for RESET** | | | | | | | |
| 3RU2900-1B | For ⌀ 6.5 mm holes in the control panel; max. control panel thickness 8 mm | | | | | | |
| | • Length 400 mm | S00 ... S3 | **3RU2900-1B** | | 1 | 1 unit | 41F |
| | • Length 600 mm | S00 ... S3 | **3RU2900-1C** | | 1 | 1 unit | 41F |
| **Modules for Remote RESET, electrical** | | | | | | | |
| 3RU1900-2AM71 | Operating range 0.85 ... 1.1 x $U_s$, Power consumption 80 VA AC, 70 W DC, ON period 0.2 ... 4 s, Switching frequency 60/h | | | | | | |
| | • 24 ... 30 V AC/DC | S00 ... S3 | **3RU1900-2AB71** | | 1 | 1 unit | 41F |
| | • 110 ... 127 V AC/DC | S00 ... S3 | **3RU1900-2AF71** | | 1 | 1 unit | 41F |
| | • 220 ... 250 V AC/DC | S00 ... S3 | **3RU1900-2AM71** | | 1 | 1 unit | 41F |
| **Sealable covers** | | | | | | | |
| 3RV2908-0P | For covering the setting knobs | S00 ... S3 | **3RV2908-0P** | | 100 | 10 units | 41E |
| **Terminal covers** | | | | | | | |
| 3RT1946-4EA1 | **Covers for contactors with cable lug and busbar connections**<br>For complying with the phase clearances and as touch protection if box terminal is removed | S3 | **3RT1946-4EA1** | | 1 | 1 unit | 41B |
| 3RT2936-4EA2 | **Covers for devices with screw terminals (box terminals)**<br>Additional touch protection for fastening to the box terminals | | **Screw terminals** | | | | |
| | • Main current level | S2 | **3RT2936-4EA2** | | 1 | 1 unit | 41B |
| | | S3 | **3RT2946-4EA2** | | 1 | 1 unit | 41B |

### *General accessories*

| | Version | Size | Color | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Tools for opening spring-loaded terminals** | | | | | | | | | |
| 3RA2908-1A | | | | | **Spring-loaded terminals** | | | | |
| | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals | Length approx. 200 mm, 3.0 mm x 0.5 mm | Titanium gray/ black, partially insulated | Main and auxiliary circuit connection: 3RU2 | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1]<br>For SIRIUS devices | 20 mm x 7 mm | Titanium gray | 3RU2 | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | **Adhesive labels**<br>For SIRIUS devices | 19 mm x 6 mm | Titanium gray | 3RB2 | **3RT2900-1SB60** | | 100 | 3 060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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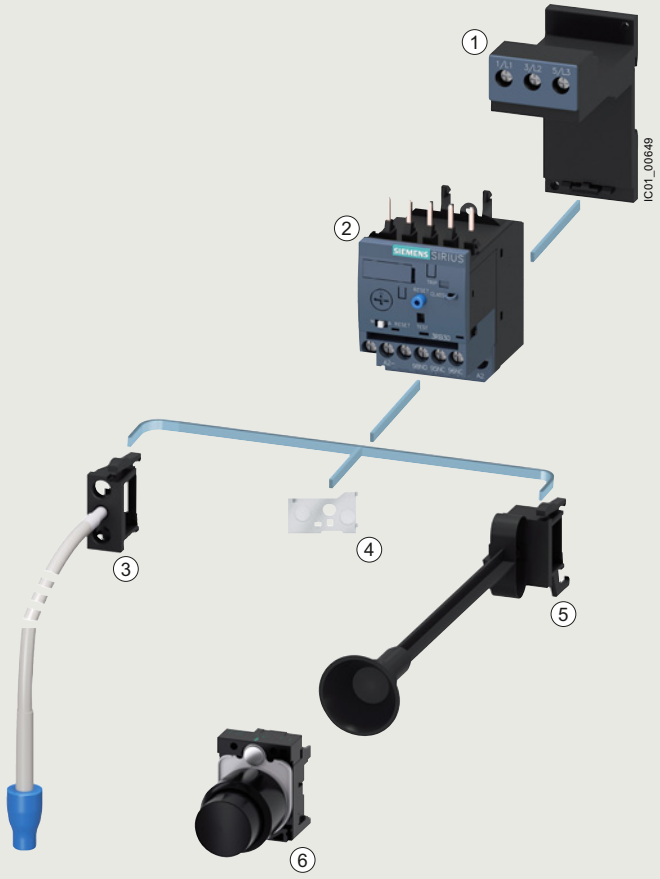
## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-control | Application Manual for switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820 |
| Industry Mall, see www.siemens.com/product?3RB3 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=ElectronicOverloadRelay | Characteristics and certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16276 |
| Conversion tool, see www.siemens.com/conversion-tool | |




1. Stand-alone assembly support for 3RU2 and 3RB3
2. 3RB30, 3RB31 electronic overload relay, sizes S00 to S3

Mountable accessories

3. Cable release with holder for RESET
4. Sealable cover
5. Mechanical RESET
6. Pushbutton

Mountable accessories for 3RB30 and 3RB31 electronic overload relays

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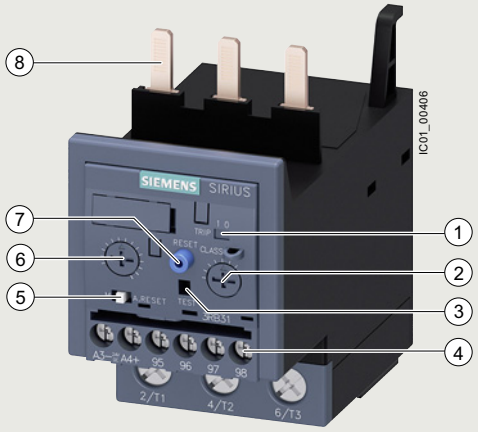


1. Switch position indicator and TEST function of the wiring:
   Indicates a trip and enables the wiring test.
2. Trip class setting/internal ground-fault detection (only 3RB31):
   Using the rotary switch you can set the required trip class and activate the internal ground-fault detection dependent on the starting conditions.
3. Solid-state test (device test):
   Enables a test of all important device components and functions.
4. Connecting terminals (removable terminal block for auxiliary circuits):
   Depending on the device version, the connecting terminals are screw terminals or spring-loaded terminals for the main and auxiliary circuits.
5. Selector switch for Manual/Automatic RESET:
   With the slide switch you can choose between Manual and Automatic RESET.
6. Motor current setting:
   Setting the device to the rated motor current is easy with the large rotary knob.
7. A device set to Manual RESET can be reset locally by pressing the RESET button. On 3RB31 overload relays an electrical Remote RESET is integrated.
8. Connection for mounting onto contactors:
   Optimally adapted in electrical, mechanical and design terms to the 3RT2 contactors. The overload relay can be connected directly using these connection pins. Stand-alone installation is possible as an alternative (in conjunction with a terminal support for stand-alone installation).

A sealable transparent cover can be optionally mounted (accessory). It secures the motor current setting against adjustment.

SIRIUS 3RB3133-4.B0 electronic overload relay

The 3RB30/3RB31 electronic overload relays up to 115 A with internal power supply have been designed for current-dependent protection of loads with normal and heavy starting, and to protect against excessive temperature rises due to overload, phase asymmetry or phase failure. An overload, phase asymmetry or phase failure result in an increase of the motor current beyond the set rated motor current. This current rise is detected by the current transformers integrated into the devices and evaluated by corresponding solid-state circuits which then output a pulse to the auxiliary contacts. The auxiliary contacts then switch off the load by means of a contactor. The break time depends on the ratio between the tripping current and the current setting $I_e$ and is stored in the form of a long-term stable tripping characteristic curve, see Characteristics.

In addition to inverse-time delayed protection of loads against excessive temperature rises due to overload, phase asymmetry and phase failure, the 3RB31 electronic overload relays also allow internal ground-fault detection (not possible in conjunction with contactor assemblies for star-delta (wye-delta) starting). This provides protection of loads against incomplete ground faults due to damage to the insulation material, moisture, condensed water, etc.

The "tripped" status is signaled by means of a switch position indicator. The relay is reset manually or automatically after the recovery time has elapsed.

The 3RB3 electronic overload relays are suitable for operation with frequency converters.

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials. They comply with all important worldwide standards and approvals.

For 3RB20 and 3RB21 overload relays in sizes S6 to S10/S12, see page 7/114 onwards.

***Use in hazardous areas***

The 3RB30/3RB31 electronic overload relays are suitable for the overload protection of motors with the following types of protection:

- Ex II (2) G [Ex e] [Ex d] [Ex px]
- Ex II (2) D [Ex t] [Ex p]

EC type-examination certificate for Group II, Category (2) G/D exists. It has the number PTB 09 ATEX 3001.

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***Article number scheme***

| Product versions | | Article number |
|---|---|---|
| **Electronic overload relays** | | **3RB3** □ □ □ – □ □ □ □ |
| Device type | e.g. 0 = standard device, with internal supply, for three-phase loads | □ |
| Size, rated operational current and power | e.g. 1 = 16 A (7.5 kW) for size S00 | □ |
| Version of the Automatic RESET, electrical Remote RESET | e.g. 6 = switchable between Manual/Automatic RESET | □ |
| Trip class (CLASS) | e.g. 1 = CLASS 10E | □ |
| Setting range of the overload release | e.g. R = 0.1 ... 0.4 A | □ |
| Connection methods | e.g. B = screw terminals for main and auxiliary circuits | □ |
| Installation type | e.g. 0 = for mounting onto contactors | □ |
| Example | | **3RB3 0 1 6 – 1 R B 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

The most important features and benefits of the 3RB30/3RB31 electronic overload relays are listed in the overview table (see "General Data" page 7/76 onwards.)

## Application

***Industries***

The 3RB30/3RB31 electronic overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed protection of their electrical loads (e.g. motors) under normal and heavy starting conditions (CLASS 5E to 30E), minimize project completion times, inventories and energy consumption, and optimize plant availability and maintenance management.

***Application***

The 3RB30/3RB31 electronic overload relays have been designed for the protection of three-phase motors in sinusoidal 50/60 Hz voltage networks. The relays are not suitable for the protection of single-phase AC or DC loads.

The 3RU21 thermal overload relay or the 3RB22/3RB23/3RB24 electronic overload relay can be used for single-phase AC loads. For DC loads we recommend the 3RU21 thermal overload relay.

***Ambient conditions***

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, aging and temperature fluctuations.

For the temperature range from -25 to +60 °C, the 3RB30/3RB31 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

***Use of SIRIUS protection devices in conjunction with IE3 and IE4 motors***

Note:

For the use of 3RB30/3RB31 electronic overload relays in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

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## Technical specifications

| More information | |
|---|---|
| System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164 |
| Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188 | Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16276/td |

The following technical information is intended to provide an initial overview of the various types of devices and functions.

| **Type** | | **3RB3016, 3RB3113** | **3RB3026, 3RB3123** | **3RB3036, 3RB3133** | **3RB3046, 3RB3143** |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| Dimensions (W x H x D) (overload relay with stand-alone installation support) | | | | | |
| • Screw terminals | mm | 45 x 89 x 80 | 45 x 97 x 94 | 55 x 105 x 117 | 70 x 106 x 124 |
| • Spring-loaded terminals | mm | 45 x 102 x 80 | 45 x 116 x 95 | 55 x 105 x 117 | 70 x 106 x 124 |
| **General data** | | | | | |
| **Tripping in the event of** | | Overload, phase failure, and phase asymmetry + ground fault (for 3RB31 only) | | | |
| **Trip class** according to IEC 60947-4-1 | CLASS | 3RB30: 10E, 20E; 3RB31: 5E, 10E, 20E or 30E adjustable | | | |
| **Phase failure sensitivity** | | Yes | | | |
| **Reset and recovery** | | | | | |
| • Reset options after tripping | | Manual and Automatic RESET, 3RB31 has an integrated connection for electrical Remote RESET (24 V DC) | | | |
| • Recovery time | | | | | |
| - For Automatic RESET | | Approx. 3 min | | | |
| - For Manual RESET | | Immediately | | | |
| - For Remote RESET | | Immediately | | | |
| **Features** | | | | | |
| • Display of operating state on device | | Yes, by means of switch position indicator slide | | | |
| • TEST function | | Yes, test of electronics by pressing the TEST button/ test of auxiliary contacts and wiring of control circuit by actuating the switch position indicator slide/self-monitoring | | | |
| • RESET button | | Yes | | | |
| • STOP button | | No | | | |
| **Protection and operation of explosion-proof motors** | | | | | |
| Certificate of suitability/explosion protection type according to ATEX Directive 2014/34/EU | | PTB 09 ATEX 3001<br>Ex II (2) G [Ex e] [Ex d] [Ex px]<br>Ex II (2) G [Ex t] [Ex p]<br>see https://support.industry.siemens.com/cs/ww/en/view/40591327 | | | |
| **Ambient temperatures** | | | | | |
| • Storage/transport | °C | -40 ... +80 | | | |
| • Operation | °C | -25 ... +60 | | | |
| • Temperature compensation | °C | +60 | | | |
| • Permissible rated current at | | | | | |
| - Temperature inside control cabinet 60 °C | % | 100 | | | |
| - Temperature inside control cabinet 70 °C | % | On request | | | |
| **Repeat terminals** | | | | | |
| • Coil repeat terminals | | Yes | Not required | | |
| • Auxiliary contact repeat terminals | | Yes | Not required | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | | | |
| • Screw terminals/spring-loaded terminals | | IP20 | | | |
| • Straight-through transformers | | -- | | IP20 | |
| **Touch protection on the front** according to IEC 60529 | | | | | |
| • Screw terminals/spring-loaded terminals | | Finger-safe for vertical touching from the front | | | |
| • Straight-through transformers | | -- | | Finger-safe for vertical touching from the front | |
| **Shock resistance with sine** according to IEC 60068-2-27 | *g*/ms | 15/11 (signaling contact 97/98 in position "tripped": 9 *g*/11 ms) | | 15/11 (signaling contact 97/98 in position "tripped": 8 *g*/11 ms) | |

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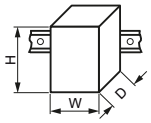
| **Type** | | **3RB3016, 3RB3113** | **3RB3026, 3RB3123** | **3RB3036, 3RB3133** | **3RB3046, 3RB3143** |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| Dimensions (W x H x D) (overload relay with stand-alone installation support) | |  | | | |
| • Screw terminals | mm | 45 x 89 x 80 | 45 x 97 x 94 | 55 x 105 x 117 | 70 x 106 x 124 |
| • Spring-loaded terminals | mm | 45 x 102 x 80 | 45 x 116 x 95 | 55 x 105 x 117 | 70 x 106 x 124 |
| **General data (continued)** | | | | | |
| **Electromagnetic compatibility (EMC) – Interference immunity** | | | | | |
| • Conductor-related interference | | | | | |
| - Burst according to IEC 61000-4-4 (corresponds to degree of severity 3) | kV | 2 (power ports), 1 (signal port) | | | |
| - Surge according to IEC 61000-4-5 (corresponds to degree of severity 3) | kV | 2 (line to earth), 1 (line to line) | | | |
| • Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV | 8 (air discharge), 6 (contact discharge) | | | |
| • Field-related interference according to IEC 61000-4-3 (corresponds to degree of severity 3) | V/m | 10 | | | |
| **Electromagnetic compatibility (EMC) – Emitted interference** | | Degree of severity B according to EN 55011 (CISPR 11) and EN 55022 (CISPR 22) | | | |
| **Installation altitude above sea level** | m | Up to 2 000 | | | |
| **Mounting position** | | Any | | | |
| **Type of mounting** | | Direct mounting/stand-alone installation with terminal support | | | |

| **Type** | | **3RB3016, 3RB3113** | **3RB3026, 3RB3123** | **3RB3036, 3RB3133** | **3RB3046, 3RB3143** |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| **Main circuit** | | | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 690 | | 690<br>1 000 with straight-through transformer | 1 000 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | | 6<br>8 with straight-through transformer | 8 |
| **Rated operational voltage $U_e$** | V | 690 | | 690<br>1 000 with straight-through transformer | 1 000 |
| **Type of current** | | | | | |
| • Direct current | | No | | | |
| • Alternating current | | Yes, 50/60 Hz ±5% | | | |
| **Current setting** | A<br><br>A | 0.1 ... 0.4<br>to<br>4 ... 16 | 0.1 ... 0.4<br>to<br>10 ... 40 | 12.5 ... 50<br>and<br>20 ... 80 | 12.5 ... 50<br>and<br>32 ... 115 |
| **Heavy starting** | | See Equipment Manual | | | |
| **Power loss per unit (max.)** | W | 0.1 ... 1.1 | 0.1 ... 4.5 | 0.5 ... 4.6 | 0.9 ... 4.6 |
| **Short-circuit protection** | | | | | |
| • With fuse without contactor | | See "Selection and ordering data", pages 7/102 ... 7/104 | | | |
| • With fuse and contactor | | "Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders", see Configuration Manual. | | | |
| **Protective separation between main and auxiliary conducting paths** According to IEC 60947-1 (pollution degree 2) | | | | | |
| • For systems with grounded neutral point | V | 690 | | | |
| • For systems with ungrounded neutral point | V | 600 | | | |

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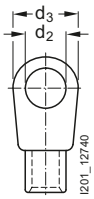
## 3RB30, 3RB31 for standard applications

| **Type** | | **3RB3016, 3RB3113** | **3RB3026, 3RB3123** | **3RB3036, 3RB3133** | **3RB3046, 3RB3143** |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| **Conductor cross-sections of main circuit** | | | | | |
| **Connection type** | | **Screw terminals** | | | **Screw terminals with box terminal** |
| **Terminal screw** | | M3, Pozidriv size 2 | M4, Pozidriv size 2 | | 4 mm Allen screw |
| **Operating devices** | mm | ⌀ 5 ... 6 | ⌀ 5 ... 6 | | 4 mm Allen screw |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 | 2 ... 2.5 | | 4.5 ... 6 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1], 2 x (0.5 ... 4)[1] | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 10)[1] | 1 x (1 ... 50)[1], 2 x (1 ... 35)[1] | 2 x (2.5 ... 16)[1], 2 x (10 ... 50)[1], 1 x (10 ... 70)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 6)[1], max. 1 x 10 | 2 x (1 ... 25)[1], 1 x (1 ... 35)[1] | 2 x (2.5 ... 35)[1], 1 x (2.5 ... 50)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1], 2 x (18 ... 14)[1], 2 x 12 | 2 x (16 ... 12)[1], 2 x (14 ... 8)[1] | 2 x (18 ... 2)[1], 1 x (18 ... 1)[1] | 2 x (10 ... 1/0)[1], 1 x (10 ... 2/0)[1] |
| **Removable box terminals**[2] | | | | | |
| • With copper bars[3] | mm | -- | -- | -- | 2 x 12 x 4 |
| • With cable lugs[4] | | | | | |
| - Terminal screw | | -- | -- | -- | M6 |
| - Prescribed tightening torque | Nm | -- | -- | -- | 4.5 ... 6 |
| - Usable ring cable lugs | mm | -- | -- | -- | $d_2$ = min. 6.3<br>$d_3$ = max. 19 |
| **Connection type** | | **Spring-loaded terminals** | | | |
| **Operating devices** | mm | 3.0 x 0.5 and 3.5 x 0.5 | | | |
| **Conductor cross-sections (min./max.),** one conductor can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 1 x (0.5 ... 4) | 1 x (1 ... 10) | -- | |
| • Finely stranded without end sleeve | $mm^2$ | 1 x (0.5 ... 2.5) | 1 x (1 ... 6) | -- | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 1 x (0.5 ... 2.5) | 1 x (1 ... 6) | -- | |
| • AWG cables, solid or stranded | AWG | 1 x (20 ... 12) | 1 x (18 ... 8) | -- | |
| • Max. external diameter of the conductor insulation | mm | 3.6 | 6.4 | -- | |
| **Connection type** | | **Straight-through transformers** | | | |
| Diameter of opening | mm | -- | | 15 | 18 |




1) If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.
2) Cable lug and busbar connection possible after removing the box terminals.
3) If bars larger than 12 mm x 10 mm are connected, a 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/106.
4) If conductors larger than 25 $mm^2$ are connected, the 3RT2946-4EA2 cover is needed to maintain the required phase clearance, see page 7/106.

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| **Type** | | **3RB3016, 3RB3113** | **3RB3026, 3RB3123** | **3RB3036, 3RB3133** | **3RB3046, 3RB3143** |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| **Auxiliary circuit** | | | | | |
| **Number of NO contacts** | | 1 | | | |
| **Number of NC contacts** | | 1 | | | |
| **Auxiliary contacts – Assignment** | | 1 NO for the signal "tripped";<br>1 NC for disconnecting the contactor | | | |
| **Rated insulation voltage $U_i$**<br>(pollution degree 3) | V | 300 | | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 | | | |
| **Auxiliary contacts – Contact rating** | | | | | |
| • NC, NO contact with alternating current AC-14/AC-15, rated operational current $I_e$ at $U_e$ | | | | | |
| - 24 V | A | 4 | | | |
| - 120 V | A | 4 | | | |
| - 125 V | A | 4 | | | |
| - 250 V | A | 3 | | | |
| • NC, NO contacts with direct current DC-13, rated operational current $I_e$ at $U_e$ | | | | | |
| - 24 V | A | 2 | | | |
| - 60 V | A | 0.55 | | | |
| - 110 V | A | 0.3 | | | |
| - 125 V | A | 0.3 | | | |
| - 250 V | A | 0.11 | | | |
| • Conventional thermal current $I_{th}$ | A | 5 | | | |
| • Contact reliability (suitability for PLC control; 17 V, 5 mA) | | Yes | | | |
| **Short-circuit protection** | | | | | |
| • With fuse, operational class gG | A | 6 | | | |
| **Ground-fault protection (only 3RB31)** | | The information refers to sinusoidal residual currents at 50/60 Hz. | | | |
| • Tripping value $I_\Delta$ | | > 0.75 x $I_{motor}$ | | | |
| • Operating range $I$ | | Lower current setting < $I_{motor}$ < 3.5 x upper current setting | | | |
| • Response time $t_{trip}$ (in steady-state condition) | s | < 1 | | | |
| **Integrated electrical Remote RESET (only 3RB31)** | | | | | |
| Connecting terminals A3, A4 | | 24 V DC, max. 200 mA for approx. 20 ms, then < 10 mA | | | |
| **Protective separation between auxiliary conducting paths** according to IEC 60947-1 | V | 300 | | | |

| **Type** | | **3RB3016, 3RB3113** | **3RB3026, 3RB3123** | **3RB3036, 3RB3133** | **3RB3046, 3RB3143** |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| **CSA, UL and UR rated data** | | | | | |
| **Auxiliary circuit – Switching capacity** | | B600, R300 | | | |
| **Conductor cross-sections for auxiliary circuit** | | | | | |
| **Connection type** | | **Screw terminals** | | | |
| **Terminal screw** | | M3, Pozidriv size 2 | | | |
| **Operating devices** | mm | ⌀ 5 ... 6 | | | |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 | | | |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 1 x (0.5 ... 4)[1], 2 x (0.5 ... 2.5)[1] | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 1 x (0.5 ... 2.5)[1], 2 x (0.5 ... 1.5)[1] | | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) | | | |
| **Connection type** | | **Spring-loaded terminals** | | | |
| **Operating devices** | mm | 3.0 x 0.5 | | | |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.25 ... 1.5) | | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.25 ... 1.5) | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.25 ... 1.5) | | | |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 16) | | | |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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**3RB30, 3RB31 for standard applications** *IE3/IE4* **ready**

## Selection and ordering data

### *3RB30 electronic overload relays, CLASS 10E*

Features and technical specifications:

- Connection methods
  - Sizes S00 and S0
    Main and auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S2 and S3
    Main circuit: Screw terminals with box terminal or as straight-through transformer
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function and self-monitoring
- Sealable covers (optional accessory)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41G

3RB3016-1.B0

3RB3026-1.B0

3RB3036-1.B0

3RB3036-1.W1

3RB3046-1.B0

3RB3046-1.W1

| Size contactor | Rated power for three-phase motors, rated value[1] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[2] | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| | | | | Article No. | Price per PU | Article No. | Price per PU |
| | kW | A | A | | | | |
| **Size S00** | | | | | | | |
| S00 | ***Devices for mounting on contactor[3]*** | | | | | | |
| | 0.04 ... 0.09 | 0.1 ... 0.4 | 4 | **3RB3016-1RB0** | | **3RB3016-1RE0** | |
| | 0.12 ... 0.37 | 0.32 ... 1.25 | 6 | **3RB3016-1NB0** | | **3RB3016-1NE0** | |
| | 0.37 ... 1.5 | 1 ... 4 | 20 | **3RB3016-1PB0** | | **3RB3016-1PE0** | |
| | 1.5 ... 5.5 | 3 ... 12 | 50 | **3RB3016-1SB0** | | **3RB3016-1SE0** | |
| | 2.2 ... 7.5 | 4 ... 16 | 50 | **3RB3016-1TB0** | | **3RB3016-1TE0** | |
| **Size S0** | | | | | | | |
| S0 | ***Devices for mounting on contactor[3]*** | | | | | | |
| | 0.04 ... 0.09 | 0.1 ... 0.4 | 4 | **3RB3026-1RB0** | | **3RB3026-1RE0** | |
| | 0.12 ... 0.37 | 0.32 ... 1.25 | 6 | **3RB3026-1NB0** | | **3RB3026-1NE0** | |
| | 0.37 ... 1.5 | 1 ... 4 | 20 | **3RB3026-1PB0** | | **3RB3026-1PE0** | |
| | 1.5 ... 5.5 | 3 ... 12 | 50 | **3RB3026-1SB0** | | **3RB3026-1SE0** | |
| | 3 ... 11 | 6 ... 25 | 63 | **3RB3026-1QB0** | | **3RB3026-1QE0** | |
| | 5.5 ... 18.5 | 10 ... 40 | 80 | **3RB3026-1VB0** | | **3RB3026-1VE0** | |
| **Size S2** | | | | | | | |
| S2 | ***Devices with screw terminals (main current side) and for mounting on contactor[3]*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3036-1UB0** | | **3RB3036-1UD0** | |
| | 11 ... 37 | 20 ... 80 | 250 | **3RB3036-1WB0** | | **3RB3036-1WD0** | |
| | ***Devices with straight-through transformer for stand-alone installation*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3036-1UW1** | | **3RB3036-1UX1** | |
| | 11 ... 37 | 20 ... 80 | 250 | **3RB3036-1WW1** | | **3RB3036-1WX1** | |
| **Size S3** | | | | | | | |
| S3 | ***Devices with screw terminals (main current side) and for mounting on contactor[3]*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3046-1UB0** | | **3RB3046-1UD0** | |
| | 18.5 ... 55 | 32 ... 115 | 315 | **3RB3046-1XB0** | | **3RB3046-1XD0** | |
| | ***Devices with straight-through transformer for stand-alone installation*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3046-1UW1** | | **3RB3046-1UX1** | |
| | 18.5 ... 55 | 32 ... 115 | 315 | **3RB3046-1XW1** | | **3RB3046-1XX1** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

3) With the appropriate terminal supports (see page 7/105), these overload relays can also be installed as stand-alone units.

Note:

For reliable operational current, note derating information, see Equipment Manual.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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### *3RB30 electronic overload relays, CLASS 20E*

Features and technical specifications:

- Connection methods
  - Sizes S00 and S0
    Main and auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S2 and S3
    Main circuit: Screw terminals with box terminal or as straight-through transformer
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function and self-monitoring
- Sealable covers (optional accessory)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41G

3RB3016-2.B0

3RB3026-2.B0

3RB3036-2.B0

3RB3036-2.W1

3RB3046-2.B0

3RB3046-2.W1

| Size contactor | Rated power for three-phase motors, rated value[1] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[2] | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| | | | | Article No. | Price per PU | Article No. | Price per PU |
| | kW | A | A | | | | |
| **Size S00** | | | | | | | |
| S00 | ***Devices for mounting on contactor[3]*** | | | | | | |
| | 0.04 ... 0.09 | 0.1 ... 0.4 | 4 | **3RB3016-2RB0** | | **3RB3016-2RE0** | |
| | 0.12 ... 0.37 | 0.32 ... 1.25 | 6 | **3RB3016-2NB0** | | **3RB3016-2NE0** | |
| | 0.37 ... 1.5 | 1 ... 4 | 20 | **3RB3016-2PB0** | | **3RB3016-2PE0** | |
| | 1.5 ... 5.5 | 3 ... 12 | 50 | **3RB3016-2SB0** | | **3RB3016-2SE0** | |
| | 2.2 ... 7.5 | 4 ... 16 | 50 | **3RB3016-2TB0** | | **3RB3016-2TE0** | |
| **Size S0** | | | | | | | |
| S0 | ***Devices for mounting on contactor[3]*** | | | | | | |
| | 0.04 ... 0.09 | 0.1 ... 0.4 | 4 | **3RB3026-2RB0** | | **3RB3026-2RE0** | |
| | 0.12 ... 0.37 | 0.32 ... 1.25 | 6 | **3RB3026-2NB0** | | **3RB3026-2NE0** | |
| | 0.37 ... 1.5 | 1 ... 4 | 20 | **3RB3026-2PB0** | | **3RB3026-2PE0** | |
| | 1.5 ... 5.5 | 3 ... 12 | 50 | **3RB3026-2SB0** | | **3RB3026-2SE0** | |
| | 3 ... 11 | 6 ... 25 | 63 | **3RB3026-2QB0** | | **3RB3026-2QE0** | |
| | 5.5 ... 18.5 | 10 ... 40 | 80 | **3RB3026-2VB0** | | **3RB3026-2VE0** | |
| **Size S2** | | | | | | | |
| S2 | ***Devices with screw terminals (main current side) and for mounting on contactor[3]*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3036-2UB0** | | **3RB3036-2UD0** | |
| | 11 ... 37 | 20 ... 80 | 250 | **3RB3036-2WB0** | | **3RB3036-2WD0** | |
| | ***Devices with straight-through transformer for stand-alone installation*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3036-2UW1** | | **3RB3036-2UX1** | |
| | 11 ... 37 | 20 ... 80 | 250 | **3RB3036-2WW1** | | **3RB3036-2WX1** | |
| **Size S3** | | | | | | | |
| S3 | ***Devices with screw terminals (main current side) and for mounting on contactor[3]*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3046-2UB0** | | **3RB3046-2UD0** | |
| | 18.5 ... 55 | 32 ... 115 | 315 | **3RB3046-2XB0** | | **3RB3046-2XD0** | |
| | ***Devices with straight-through transformer for stand-alone installation*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3046-2UW1** | | **3RB3046-2UX1** | |
| | 18.5 ... 55 | 32 ... 115 | 315 | **3RB3046-2XW1** | | **3RB3046-2XX1** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

3) With the appropriate terminal supports (see page 7/105), these overload relays can also be installed as stand-alone units.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3RB30, 3RB31 for standard applications *IE3/IE4 ready*

***3RB31 electronic overload relays, CLASS 5E, 10E, 20E or 30E (adjustable)***

Features and technical specifications:

- Connection methods
  - Sizes S00 and S0
    Main and auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S2 and S3
    Main circuit: Screw terminals with box terminal or as straight-through transformer
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal ground-fault detection (activatable)
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Electrical Remote RESET integrated
- Switch position indicator
- TEST function and self-monitoring
- Sealable covers (optional accessory)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41G

3RB3113-4.B0

3RB3123-4.B0

3RB3133-4.B0

3RB3133-4.W1

3RB3143-4.B0

3RB3143-4.W1

| Size contactor | Rated power for three-phase motors, rated value[1] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[2] | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| | | | | Article No. | Price per PU | Article No. | Price per PU |
| | kW | A | A | | | | |
| **Size S00** | | | | | | | |
| S00 | ***Devices for mounting on contactor[3]*** | | | | | | |
| | 0.04 ... 0.09 | 0.1 ... 0.4 | 4 | **3RB3113-4RB0** | | **3RB3113-4RE0** | |
| | 0.12 ... 0.37 | 0.32 ... 1.25 | 6 | **3RB3113-4NB0** | | **3RB3113-4NE0** | |
| | 0.37 ... 1.5 | 1 ... 4 | 20 | **3RB3113-4PB0** | | **3RB3113-4PE0** | |
| | 1.5 ... 5.5 | 3 ... 12 | 50 | **3RB3113-4SB0** | | **3RB3113-4SE0** | |
| | 2.2 ... 7.5 | 4 ... 16 | 50 | **3RB3113-4TB0** | | **3RB3113-4TE0** | |
| **Size S0** | | | | | | | |
| S0 | ***Devices for mounting on contactor[3]*** | | | | | | |
| | 0.04 ... 0.09 | 0.1 ... 0.4 | 4 | **3RB3123-4RB0** | | **3RB3123-4RE0** | |
| | 0.12 ... 0.37 | 0.32 ... 1.25 | 6 | **3RB3123-4NB0** | | **3RB3123-4NE0** | |
| | 0.37 ... 1.5 | 1 ... 4 | 20 | **3RB3123-4PB0** | | **3RB3123-4PE0** | |
| | 1.5 ... 5.5 | 3 ... 12 | 50 | **3RB3123-4SB0** | | **3RB3123-4SE0** | |
| | 3 ... 11 | 6 ... 25 | 63 | **3RB3123-4QB0** | | **3RB3123-4QE0** | |
| | 5.5 ... 18.5 | 10 ... 40 | 80 | **3RB3123-4VB0** | | **3RB3123-4VE0** | |
| **Size S2** | | | | | | | |
| S2 | ***Devices with screw terminals (main current side) and for mounting on contactor[3]*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3133-4UB0** | | **3RB3133-4UD0** | |
| | 11 ... 37 | 20 ... 80 | 250 | **3RB3133-4WB0** | | **3RB3133-4WD0** | |
| | ***Devices with straight-through transformer for stand-alone installation*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3133-4UW1** | | **3RB3133-4UX1** | |
| | 11 ... 37 | 20 ... 80 | 250 | **3RB3133-4WW1** | | **3RB3133-4WX1** | |
| **Size S3** | | | | | | | |
| S3 | ***Devices with screw terminals (main current side) and for mounting on contactor[3]*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3143-4UB0** | | **3RB3143-4UD0** | |
| | 18.5 ... 55 | 32 ... 115 | 315 | **3RB3143-4XB0** | | **3RB3143-4XD0** | |
| | ***Devices with straight-through transformer for stand-alone installation*** | | | | | | |
| | 7.5 ... 22 | 12.5 ... 50 | 200 | **3RB3143-4UW1** | | **3RB3143-4UX1** | |
| | 18.5 ... 55 | 32 ... 115 | 315 | **3RB3143-4XW1** | | **3RB3143-4XX1** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

3) With the appropriate terminal supports (see page 7/105), these overload relays can also be installed as stand-alone units.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

The following optional accessories are available for the 3RB30/3RB31 electronic overload relays:

- Size-specific terminal support for stand-alone installation, in sizes S00 and S0 also with spring-loaded terminals
- Mechanical RESET (for all sizes)
- Cable release for resetting devices which are difficult to access (for all sizes)
- Sealable cover (for all sizes)
- Size-specific terminal covers for devices with screw terminals (box terminals)

## Selection and ordering data

| | Version | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Terminal supports for stand-alone installation** | | | | | | | |
| 3RU2916-3AA01 3RU2916-3AC01 | **Terminal supports for overload relays with screw terminals** | | **Screw terminals** | | | | |
| | For separate mounting of the overload relays; screw and snap-on mounting on DIN rail | S00 | **3RU2916-3AA01** | | 1 | 1 unit | 41F |
| | | S0 | **3RU2926-3AA01** | | 1 | 1 unit | 41F |
| | | S2 | **3RU2936-3AA01** | | 1 | 1 unit | 41F |
| | | S3 | **3RU2946-3AA01** | | 1 | 1 unit | 41F |
| 3RU2926-3AA01 3RU2926-3AC01 | **Terminal supports for overload relays with spring-loaded terminals** | | **Spring-loaded terminals** | | | | |
| | For separate mounting of the overload relays; screw and snap-on mounting on DIN rail | S00 | **3RU2916-3AC01** | | 1 | 1 unit | 41F |
| | | S0 | **3RU2926-3AC01** | | 1 | 1 unit | 41F |
| 3RU2936-3AA01 | | | | | | | |
| 3RU2946-3AA01 | | | | | | | |
| **Mechanical RESET** | | | | | | | |
| 3RB3980-0A | **Resetting plungers, holders and formers** | S00 ... S3 | **3RB3980-0A** | | 1 | 1 unit | 41F |
| 3SU1200-0FB10-0AA0 | **Pushbuttons with extended stroke** (12 mm), IP65, ⌀ 22 mm | S00 ... S3 | **3SU1200-0FB10-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0KG10-0AA0 | **Extension plungers** For compensation of the distance between the pushbutton and the resetting plunger of the relay | S00 ... S3 | **3SU1900-0KG10-0AA0** | | 1 | 1 unit | 41J |

7

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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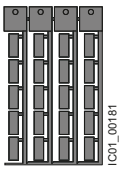
## Accessories

| | Version | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Cable releases with holder for RESET** | | | | | | | |
| 3RB3980-0B | For ⌀ 6.5 mm holes in the control panel; max. control panel thickness 8 mm | | | | | | |
| | • Length 400 mm | S00 ... S3 | **3RB3980-0B** | | 1 | 1 unit | 41F |
| | • Length 600 mm | S00 ... S3 | **3RB3980-0C** | | 1 | 1 unit | 41F |
| **Sealable covers** | | | | | | | |
| 3RB3984-0 | For covering the setting knobs | S00 ... S3 | **3RB3984-0** | | 1 | 1 unit | 41F |
| **Terminal covers** | | | | | | | |
| 3RT1946-4EA1 | **Covers for contactors with cable lug and busbar connections**<br>For complying with the phase clearances and as touch protection if box terminal is removed | S3 | **3RT1946-4EA1** | | 1 | 1 unit | 41B |
| 3RT2936-4EA2 | **Covers for devices with screw terminals (box terminals)**<br>Additional touch protection for fastening to the box terminals | | **Screw terminals** | | | | |
| | • Main current level | S2 | **3RT2936-4EA2** | | 1 | 1 unit | 41B |
| | | S3 | **3RT2946-4EA2** | | 1 | 1 unit | 41B |

### *General accessories*

| | Version | Size | Color | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Tools for opening spring-loaded terminals** | | | | | | | | | |
| 3RA2908-1A | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals | Length approx. 200 mm, 3.0 mm x 0.5 mm | Titanium gray/ black, partially insulated | Main and auxiliary circuit connection: 3RB3 | **Spring-loaded terminals**<br>**3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1]<br>For SIRIUS devices | 20 mm x 7 mm | Titanium gray | 3RB3 | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | **Adhesive labels**<br>For SIRIUS devices | 19 mm x 6 mm | Titanium gray | 3RB2 | **3RT2900-1SB60** | | 100 | 3 060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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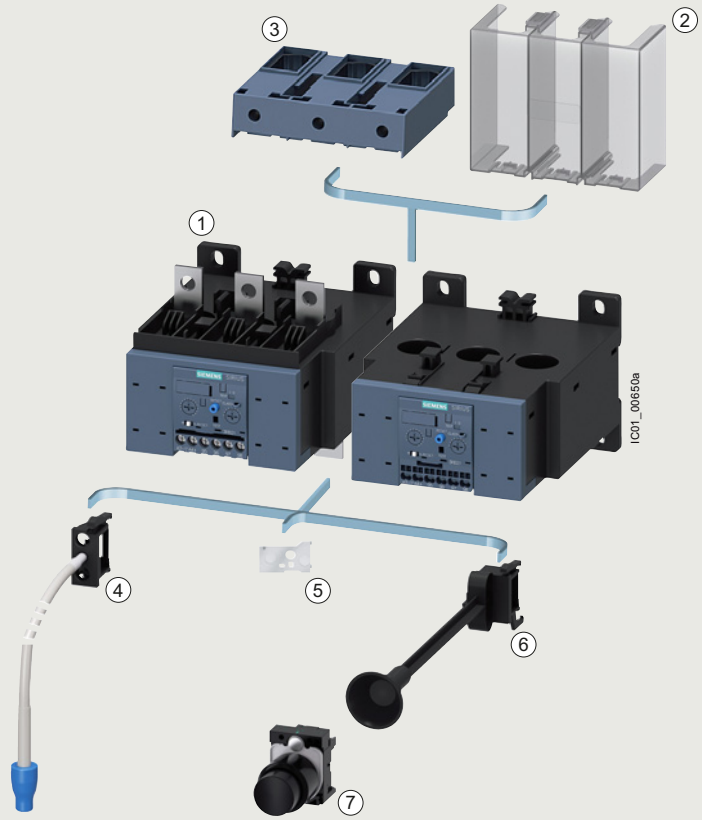
## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-control | Application Manual for switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820 |
| Industry Mall, see www.siemens.com/product?3RB2 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164 |
| Conversion tool, see www.siemens.com/conversion-tool | Characteristics and certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16278 |




1 3RB2 overload relay
Sizes S6 to S10/S12

Mountable accessories
2 Terminal cover
3 Box terminals
4 Cable release with holder for RESET
5 Sealable cover
6 Mechanical RESET
7 Pushbutton

Mountable accessories for 3RB2 electronic overload relays (sizes S6 to S10/S12)

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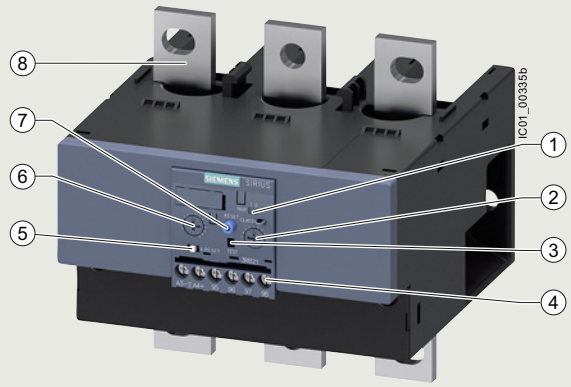


(1) Switch position indicator and TEST function of the wiring:
Indicates a trip and enables the wiring test.

(2) Trip class setting/internal ground-fault detection (only 3RB21):
Using the rotary switch you can set the required trip class and activate the internal ground-fault detection dependent on the starting conditions.

(3) Solid-state test (device test):
Enables a test of all important device components and functions.

(4) Connecting terminals (removable terminal block for auxiliary circuits):
The generously sized terminals permit connection of two conductors with different cross-sections for the main and auxiliary circuits. The auxiliary circuit can be connected with screw terminals and alternatively with spring-loaded terminals.

(5) Selector switch for Manual/Automatic RESET:
With the slide switch you can choose between Manual and Automatic RESET.

(6) Motor current setting:
Setting the device to the rated motor current is easy with the large rotary knob.

(7) A device set to Manual RESET can be reset locally by pressing the RESET button. On the 3RB21 overload relay a solid-state Remote RESET is integrated.

(8) Connection for mounting onto contactors:
Optimally adapted in electrical, mechanical and design terms to the 3RT1 contactors. These connecting pins can be used for direct mounting of the overload relay to the contactor. Stand-alone installation is possible as an alternative (partly in conjunction with a terminal support for stand-alone installation).

SIRIUS 3RB2153-4FW2 electronic overload relays

The 3RB20 and 3RB21 electronic overload relays up to 630 A with internal power supply have been designed for inverse-time delayed protection of loads with normal and heavy starting (see Equipment Manual) against excessive temperature rises due to overload, phase asymmetry or phase failure.

An overload, phase asymmetry or phase failure result in an increase of the motor current beyond the set rated motor current. This current rise is detected by the current transformers integrated into the devices and evaluated by corresponding solid-state circuits which then output a pulse to the auxiliary contacts. The auxiliary contacts then switch off the load by means of a contactor. The break time depends on the ratio between the tripping current and the current setting $I_e$ and is stored in the form of a long-term stable tripping characteristic curve, see Characteristics.

In addition to inverse-time delayed protection of loads against excessive temperature rises due to overload, phase asymmetry and phase failure, the 3RB21 electronic overload relays also allow internal ground-fault detection (not possible in conjunction with contactor assemblies for star-delta (wye-delta) starting). This provides protection of loads against incomplete ground faults due to damage to the insulation material, moisture, condensed water, etc.

The "tripped" status is signaled by means of a switch position indicator. The relay is reset manually or automatically after the recovery time has elapsed.

The 3RB2 electronic overload relays are suitable for operation with frequency converters, see Equipment Manual.

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials. They comply with all important worldwide standards and approvals.

For 3RB30 and 3RB31 overload relays sizes S00 to S3, see page 7/102 onwards.

***Use in hazardous areas***

The 3RB20/3RB21 electronic overload relays are suitable for the overload protection of motors with the following types of protection:

- Ex II (2) G [Ex e] [Ex d] [Ex px]
- Ex II (2) D [Ex t] [Ex p]

EC type-examination certificate for Group II, Category (2) G/D exists. It has the number PTB 06 ATEX 3001.

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***Article number scheme***

| Product versions | | Article number |
|---|---|---|
| **Electronic overload relays** | | **3RB2** ☐ ☐ ☐ – ☐ ☐ ☐ ☐ |
| Device type | e.g. 0 = standard device, with internal supply, for three-phase loads | ☐ |
| Size, rated operational current and power | e.g. 5 = 200 A (90 kW) for size S6 | ☐ |
| Version of the Automatic RESET, electrical Remote RESET | e.g. 6 = switchable between Manual/Automatic RESET | ☐ |
| Trip class (CLASS) | e.g. 1 = CLASS 10E | ☐ |
| Setting range of the overload release | e.g. F = 5 ... 200 A | ☐ |
| Connection methods | e.g. C = busbar connections main circuit; screw terminals auxiliary circuit | ☐ |
| Installation type | e.g. 2 = mounting on contactor and stand-alone installation | ☐ |
| Example | | **3RB2 0 5 6 – 1 F C 2** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

The most important features and benefits of the 3RB20/3RB21 electronic overload relays are listed in the overview table (see "General data", page 7/76 onwards).

## Application

### *Industries*

The 3RB20 and 3RB21 electronic overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed protection of their electrical loads (e.g. motors) under normal and heavy starting conditions (CLASS 5E to 30E), minimize project completion times, inventories and energy consumption, and optimize plant availability and maintenance management.

### *Application*

The 3RB20 and 3RB21 electronic overload relays have been designed for the protection of three-phase motors in sinusoidal 50/60 Hz voltage networks. The relays are not suitable for the protection of single-phase AC or DC loads.

The 3RU21 thermal overload relays or the 3RB22 to 3RB24 electronic overload relays can be used for single-phase AC loads. For DC loads we recommend the 3RU21 thermal overload relay.

### *Ambient conditions*

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, aging and temperature fluctuations.

For the temperature range from -25 to +60 °C, the 3RB20 and 3RB21 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

For the 3RB20 and 3RB21 electronic overload relays with the sizes S6, S10 and S12, the upper set value of the setting range must be reduced for ambient temperatures > 50 °C by a certain factor.

### *Use of SIRIUS protection devices in conjunction with IE3 and IE4 motors*

Note:

For the use of 3RB20 and 3RB21 electronic overload relays in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

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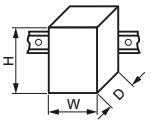
## Technical specifications

| More information | |
|---|---|
| Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60298164 | Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16278/td |

The following technical information is intended to provide an initial overview of the various types of devices and functions.

| | | | | |
|---|---|---|---|---|
| **Type** |  | | **3RB2056, 3RB2153** | **3RB2066, 3RB2163** |
| Size | | | S6 | S10/S12 |
| Dimensions (W x H x D) (overload relay with stand-alone installation support) | | mm | 120 x 119 x 155 | 145 x 147 x 156 |
| **General data** | | | | |
| **Tripping in the event of** | | | Overload, phase failure, and phase asymmetry + ground fault (for 3RB21 only) | |
| **Trip class** according to IEC 60947-4-1 | | CLASS | 3RB20: 10E or 20E;<br>3RB21: 5E, 10E, 20E and 30E adjustable | |
| **Phase failure sensitivity** | | | Yes | |
| **Overload warning** | | | No | |
| **Reset and recovery** | | | | |
| • Reset options after tripping | | | 3RB20: Manual and Automatic RESET;<br>3RB21: Manual, Automatic and Remote RESET | |
| • Recovery time | | | | |
| - For Automatic RESET | | | Approx. 3 min | |
| - For Manual RESET | | | Immediately | |
| - For Remote RESET | | | Immediately | |
| **Features** | | | | |
| • Display of operating state on device | | | Yes, by means of switch position indicator slide | |
| • TEST function | | | Yes, test of electronics by pressing the TEST button/ test of auxiliary contacts and wiring of control circuit by actuating the switch position indicator slide/self-monitoring | |
| • RESET button | | | Yes | |
| • STOP button | | | No | |
| **Protection and operation of explosion-proof motors** | | | | |
| Certificate of suitability/explosion protection type according to ATEX Directive 2014/34/EU | | | PTB 06 ATEX 3001<br>Ⓔx II (2) G [Ex e] [Ex d] [Ex px]<br>Ⓔx II (2) G [Ex t] [Ex p]<br>See https://support.industry.siemens.com/cs/ww/en/view/23814648 | |
| **Ambient temperatures** | | | | |
| • Storage/transport | | °C | -40 ... +80 | |
| • Operation | | °C | -25 ... +60 | |
| • Temperature compensation | | °C | +60 | |
| • Permissible rated current at | | | | |
| - Temperature inside control cabinet 60 °C, stand-alone installation | | % | 100 | 100 or 90[1)] |
| - Temperature inside control cabinet 60 °C, mounted on contactor | | % | 70 | 70 |
| - Temperature inside control cabinet 70 °C | | % | On request | |
| **Degree of protection IP on the front** according to IEC 60529 | | | | |
| • Screw terminals/busbar connections | | | IP00 (IP20 with box terminal/cover) | |
| • Straight-through transformers | | | IP20 | -- |
| **Touch protection on the front** according to IEC 60529 | | | | |
| • Screw terminals/busbar connections | | | Finger-safe for vertical touching from the front (with box terminals/cover) | |
| • Straight-through transformers | | | Finger-safe for vertical touching from the front | -- |

1) 90% for relay with current setting range 160 A to 630 A.

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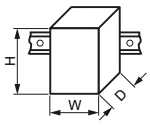
| | | | | |
|---|---|---|---|---|
| **Type** |  | | **3RB2056, 3RB2153** | **3RB2066, 3RB2163** |
| Size | | | S6 | S10/S12 |
| Dimensions (W x H x D)<br>(overload relay with stand-alone installation support) | | mm | 120 x 119 x 155 | 145 x 147 x 156 |
| **General data (continued)** | | | | |
| **Shock resistance with sine** according to IEC 60068-2-27 | | *g*/ms | 15/11 (signaling contact 97/98 in position "tripped": 4 g/11 ms | |
| **Electromagnetic compatibility (EMC) – Interference immunity** | | | | |
| • Conductor-related interference | | | | |
| - Burst according to IEC 61000-4-4<br>(corresponds to degree of severity 3) | | kV | 2 (power ports), 1 (signal port) | |
| - Surge according to IEC 61000-4-5<br>(corresponds to degree of severity 3) | | kV | 2 (line to earth), 1 (line to line) | |
| • Electrostatic discharge according to IEC 61000-4-2<br>(corresponds to degree of severity 3) | | kV | 8 (air discharge), 6 (contact discharge) | |
| • Field-related interference according to IEC 61000-4-3<br>(corresponds to degree of severity 3) | | V/m | 10 | |
| **Electromagnetic compatibility (EMC) – Emitted interference** | | | Degree of severity B according to EN 55011 (CISPR 11) and EN 55022 (CISPR 22) | |
| **Installation altitude above sea level** | | m | Up to 2 000 | |
| **Mounting position** | | | Any | |
| **Type of mounting** | | | Direct mounting/stand-alone installation | |

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## 3RB20, 3RB21 for standard applications

| | | | |
|---|---|---|---|
| **Type** | | **3RB2056, 3RB2153** | **3RB2066, 3RB2163** |
| Size | | S6 | S10/S12 |
| **Main circuit** | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 1 000 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 8 | |
| **Rated operational voltage $U_e$** | V | 1 000 | |
| **Type of current** | | | |
| • Direct current | | No | |
| • Alternating current | | Yes, 50/60 Hz ±5% | |
| **Current setting** | A | 50 ... 200 | 55 ... 250, 160 ... 630 |
| **Power loss per unit (max.)** | W | 0.05 | |
| **Short-circuit protection** | | | |
| • With fuse without contactor | | See "Selection and ordering data", pages 7/114 ... 7/116 | |
| • With fuse and contactor | | "Short-Circuit Protection with Fuses/Motor Starter Protectors for Motor Feeders", see Configuration Manual. | |
| **Protective separation between main and auxiliary conducting paths** According to IEC 60947-1 (pollution degree 2) | | | |
| • For systems with grounded neutral point | V | 690 | |
| • For systems with ungrounded neutral point | V | 600 | |
| **Conductor cross-sections of the main circuit** | | | |
| **Connection type** | | **Screw terminals with box terminal** | |
| **Terminal screw** | mm | 4 mm Allen screw | 5 mm Allen screw |
| **Operating devices** | mm | 4 mm Allen screw | 5 mm Allen screw |
| **Prescribed tightening torque** | Nm | 10 ... 12 | 20 ... 22 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | |
| • Solid | $mm^2$ | -- | -- |
| • Finely stranded without end sleeve | $mm^2$ | With 3RT1955-4G box terminal: 2 x (1 x max. 50, 1 x max. 70), 1 x (10 ... 70); With 3RT1956-4G box terminal: 2 x (1 x max. 95, 1 x max. 120), 1 x (10 ... 120) | 2 x (50 ... 185), Front clamping point only: 1 x (70 ... 240); Rear clamping point only: 1 x (120 ... 185) |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | With 3RT1955-4G box terminal: 2 x (1 x max. 50, 1 x max. 70), 1 x (10 ... 70); With 3RT1956-4G box terminal: 2 x (1 x max. 95, 1 x max. 120), 1 x (10 ... 120) | 2 x (50 ... 185), Front clamping point only: 1 x (70 ... 240); Rear clamping point only: 1 x (120 ... 185) |
| • Stranded | $mm^2$ | With 3RT1955-4G box terminal: 2 x (max. 70), 1 x (16 ... 70); With 3RT1956-4G box terminal: 2 x (max. 120), 1 x (16 ... 120) | 2 x (70 ... 240), Front clamping point only: 1 x (95 ... 300); Rear clamping point only: 1 x (120 ... 240) |
| • AWG cables, solid or stranded | AWG | With 3RT1955-4G box terminal: 2 x (max. 1/0), 1 x (6 ... 2/0); With 3RT1956-4G box terminal: 2 x (max. 3/0), 1 x (6 ... 250 kcmil) | 2 x (2/0 ... 500 kcmil), Front clamping point only: 1 x (3/0 ... 600 kcmil); Rear clamping point only: 1 x (250 kcmil ... 500 kcmil) |
| • Ribbon cables (number x width x thickness) | mm | With 3RT1955-4G box terminal: 2 x (6 x 15.5 x 0.8), 1 x (3 x 9 x 0.8 ... 6 x 15.5 x 0.8); With 3RT1956-4G box terminal: 2 x (10 x 15.5 x 0.8), 1 x (3 x 9 x 0.8 ... 10 x 15.5 x 0.8) | 2 x (20 x 24 x 0.5), 1 x (6 x 9 x 0.8 ... 20 x 24 x 0.5) |
| **Connection type** | | **Busbar connections** | |
| **Terminal screw** | | M8 x 25 | M10 x 30 |
| **Prescribed tightening torque** | Nm | 10 ... 14 | 14 ... 24 |
| **Conductor cross-sections (min./max.)** | | | |
| • Finely stranded with cable lug | $mm^2$ | 16 ... 95[1)] | 50 ... 240[2)] |
| • Stranded with cable lug | $mm^2$ | 25 ... 120[1)] | 70 ... 240[2)] |
| • AWG cables, solid or stranded, with cable lug | AWG | 4 ... 250 kcmil | 2/0 ... 500 kcmil |
| • With connecting bars (max. width) | mm | 15 | 25 |
| **Connection type** | | **Straight-through transformers** | |
| Diameter of opening | mm | 24.5 | -- |

1) When connecting cable lugs according to DIN 46235 with conductor cross-sections from 95 $mm^2$, the 3RT1956-4EA1 terminal cover must be used to ensure phase clearance, see page 7/117.

2) When connecting cable lugs according to DIN 46234 for conductor cross-sections from 240 $mm^2$, as well as DIN 46235 for cable cross-sections from 185 $mm^2$, the 3RT1956-4EA1 terminal cover must be used to ensure phase clearance, see page 7/117.

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| **Type** | | **3RB2056, 3RB2153** | **3RB2066, 3RB2163** |
|---|---|---|---|
| Size | | S6 | S10/S12 |
| **Auxiliary circuit** | | | |
| **Number of NO contacts** | | 1 | |
| **Number of NC contacts** | | 1 | |
| **Auxiliary contacts – Assignment** | | 1 NO for the signal "tripped";<br>1 NC for disconnecting the contactor | |
| **Rated insulation voltage $U_i$**<br>(pollution degree 3) | V | 300 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 | |
| **Auxiliary contacts – Contact rating** | | | |
| • NC contact with alternating current AC-14/AC-15, rated operational current $I_e$ at $U_e$: | | | |
| - 24 V | A | 4 | |
| - 120 V | A | 4 | |
| - 125 V | A | 4 | |
| - 250 V | A | 3 | |
| • NO contact with alternating current AC-14/AC-15, rated operational current $I_e$ at $U_e$: | | | |
| - 24 V | A | 4 | |
| - 120 V | A | 4 | |
| - 125 V | A | 4 | |
| - 250 V | A | 3 | |
| • NC, NO contacts with direct current DC-13, rated operational current $I_e$ at $U_e$: | | | |
| - 24 V | A | 2 | |
| - 60 V | A | 0.55 | |
| - 110 V | A | 0.3 | |
| - 125 V | A | 0.3 | |
| - 250 V | A | 0.11 | |
| • Conventional thermal current $I_{th}$ | A | 5 | |
| • Contact reliability (suitability for PLC control; 17 V, 5 mA) | | Yes | |
| **Short-circuit protection** | | | |
| • With fuse, operational class gG | A | 6 | |
| **Ground-fault protection (only 3RB21)** | | The information refers to sinusoidal residual currents at 50/60 Hz. | |
| • Tripping value $I_\Delta$ | | > 0.75 × $I_{motor}$ | |
| • Operating range $I$ | | Lower current setting < $I_{motor}$ < 3.5 × upper current setting | |
| • Response time $t_{trip}$ (in steady-state condition) | s | < 1 | |
| **Integrated electrical Remote RESET (only 3RB21)** | | | |
| Connecting terminals A3, A4 | | 24 V DC, 100 mA, 2.4 W short-term | |
| **Protective separation between auxiliary conducting paths**<br>According to IEC 60947-1 | V | 300 | |
| **CSA, UL and UR rated data** | | | |
| **Auxiliary circuit – Switching capacity** | | B300, R300 | |
| **Conductor cross-sections of the auxiliary circuit** | | | |
| **Connection type** | | **Screw terminals** | |
| **Terminal screw** | | M3, Pozidriv size 2 | |
| **Operating devices** | mm | ⌀ 5 ... 6 | |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 | |
| **Conductor cross-sections (min./max.),**<br>one or two conductors can be connected | | | |
| • Solid and stranded | $mm^2$ | 1 x (0.5 ... 4)[1], 2 x (0.5 ... 2.5)[1] | |
| • Finely stranded without end sleeve | $mm^2$ | -- | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 1 x (0.5 ... 2.5)[1], 2 x (0.5 ... 1.5)[1] | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) | |
| **Connection type** | | **Spring-loaded terminals** | |
| **Operating devices** | mm | 3.0 x 0.5 | |
| **Conductor cross-sections (min./max.),**<br>one or two conductors can be connected | | | |
| • Solid and stranded | $mm^2$ | 2 x (0.25 ... 1.5) | |
| • Finely stranded without end sleeve | $mm^2$ | -- | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.25 ... 1.5) | |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 16) | |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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## Selection and ordering data

***3RB20 electronic overload relays for mounting on contactors and stand-alone installation, CLASS 10E***

Features and technical specifications:

- Connection methods
  - Size S6
    Main circuit: With busbar connection or as straight-through transformer (an appropriate connection kit with screws, spring washers and nuts is enclosed with the devices with busbar connection)
    Auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S10/S12
    Main circuit: With busbar connection (an appropriate connection kit with screws, spring washers and nuts is enclosed)
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function and self-monitoring

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41G

3RB2056-1FW2

3RB2066-1MF2

| Size contactor | Rated power for three-phase motors, rated value[1] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[2] | **Screw terminals** (on auxiliary current side) | | **Spring-loaded terminals** (on auxiliary current side) | |
|---|---|---|---|---|---|---|---|
| | | | | Article No. | Price per PU | Article No. | Price per PU |
| | kW | A | A | | | | |
| **Size S6** | | | | | | | |
| ***Devices with busbar connection, for mounting onto contactor and stand-alone installation*** | | | | | | | |
| S6 | 30 ... 90 | 50 … 200 | 315 | **3RB2056-1FC2** | | **3RB2056-1FF2** | |
| ***Devices with straight-through transformer, for mounting on contactor and stand-alone installation*** | | | | | | | |
| For mounting on S6 contactors with box terminals | 30 ... 90 | 50 … 200 | 315 | **3RB2056-1FW2** | | **3RB2056-1FX2** | |
| **Size S10/S12** | | | | | | | |
| ***Devices with busbar connection, for mounting onto contactor and stand-alone installation*** | | | | | | | |
| S10/S12 and size 14 (3TF68/ 3TF69)[3] | 30 ... 132 | 55 … 250 | 400 | **3RB2066-1GC2** | | **3RB2066-1GF2** | |
| | 90 ... 355 | 160 … 630 | 800 | **3RB2066-1MC2** | | **3RB2066-1MF2** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

3) For 3TF68/3TF69 contactors, direct mounting is not possible.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***3RB20 electronic overload relays for mounting on contactors and stand-alone installation, CLASS 20E***

Features and technical specifications:

- Connection methods
  - Size S6
    Main circuit: With busbar connection or as straight-through transformer (an appropriate connection kit with screws, spring washers and nuts is enclosed with the devices with busbar connection)
    Auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S10/S12
    Main circuit: With busbar connection (an appropriate connection kit with screws, spring washers and nuts is enclosed)
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Switch position indicator
- TEST function and self-monitoring

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41G

3RB2056-2FW2

3RB2066-2MF2

| Size contactor | Rated power for three-phase motors, rated value[1] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[2] | **Screw terminals** (on auxiliary current side) | | **Spring-loaded terminals** (on auxiliary current side) | |
|---|---|---|---|---|---|---|---|
| | | | | Article No. | Price per PU | Article No. | Price per PU |
| | kW | A | A | | | | |
| **Size S6** | | | | | | | |
| ***Devices with busbar connection, for mounting onto contactor and stand-alone installation*** | | | | | | | |
| S6 | 30 ... 90 | 50 … 200 | 315 | **3RB2056-2FC2** | | **3RB2056-2FF2** | |
| ***Devices with straight-through transformer, for mounting on contactor and stand-alone installation*** | | | | | | | |
| For mounting on S6 contactors with box terminals | 30 ... 90 | 50 … 200 | 315 | **3RB2056-2FW2** | | **3RB2056-2FX2** | |
| **Size S10/S12[2]** | | | | | | | |
| ***Devices with busbar connection, for mounting onto contactor and stand-alone installation*** | | | | | | | |
| S10/S12 and size 14 (3TF68/ 3TF69)[3] | 30 ... 132 | 55 … 250 | 400 | **3RB2066-2GC2** | | **3RB2066-2GF2** | |
| | 90 ... 355 | 160 … 630 | 800 | **3RB2066-2MC2** | | **3RB2066-2MF2** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.

2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

3) For 3TF68/3TF69 contactors, direct mounting is not possible.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3RB20, 3RB21 for standard applications *IE3/IE4 ready*

***3RB21 electronic overload relays for mounting on contactors and stand-alone installation, CLASS 5E, 10E, 20E and 30E adjustable***

Features and technical specifications:

- Connection methods
  - Size S6
    Main circuit: With busbar connection or as straight-through transformer (an appropriate connection kit with screws, spring washers and nuts is enclosed with the devices with busbar connection)
    Auxiliary circuit: Either screw or spring-loaded terminals
  - Sizes S10/S12
    Main circuit: With busbar connection (an appropriate connection kit with screws, spring washers and nuts is enclosed)
    Auxiliary circuit: Either screw or spring-loaded terminals
- Overload protection, phase failure protection and asymmetry protection
- Internal ground-fault detection (activatable)
- Internal power supply
- Auxiliary contacts 1 NO + 1 NC
- Manual and Automatic RESET
- Electrical Remote RESET integrated
- Switch position indicator
- TEST function and self-monitoring

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41G

3RB2153-4FW2

3RB2163-4MF2

| Size contactor | Rated power for three-phase motors, rated value[1] | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[2] | **Screw terminals** (on auxiliary current side) | | **Spring-loaded terminals** (on auxiliary current side) | |
|---|---|---|---|---|---|---|---|
| | | | | Article No. | Price per PU | Article No. | Price per PU |
| | kW | A | A | | | | |
| **Size S6** | | | | | | | |
| ***Devices with busbar connection, for mounting onto contactor and stand-alone installation*** | | | | | | | |
| S6 | 30 ... 90 | 50 … 200 | 315 | **3RB2153-4FC2** | | **3RB2153-4FF2** | |
| ***Devices with straight-through transformer, for mounting on contactor and stand-alone installation*** | | | | | | | |
| For mounting on S6 contactors with box terminals | 30 ... 90 | 50 … 200 | 315 | **3RB2153-4FW2** | | **3RB2153-4FX2** | |
| **Size S10/S12[2]** | | | | | | | |
| ***Devices with busbar connection, for mounting onto contactor and stand-alone installation*** | | | | | | | |
| S10/S12 and size 14 (3TF68/ 3TF69)[3] | 30 ... 132 | 55 … 250 | 400 | **3RB2163-4GC2** | | **3RB2163-4GF2** | |
| | 90 ... 355 | 160 … 630 | 800 | **3RB2163-4MC2** | | **3RB2163-4MF2** | |

1) Guide value for 4-pole standard motors at 50 Hz 400 V AC. The actual starting and rated data of the motor to be protected must be considered when selecting the units.
2) Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.
3) For 3TF68/3TF69 contactors, direct mounting is not possible.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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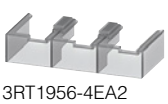
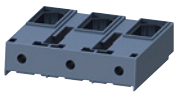
## Overview

***Overload relays for standard applications***

The following optional accessories are available for the 3RB20 and 3RB21 electronic overload relays:

- Mechanical RESET (for all sizes)
- Cable release for resetting devices which are difficult to access (for all sizes)
- Sealable cover (for all sizes)
- Terminal covers for sizes S6 and S10/S12
- Box terminal blocks for sizes S6 and S10/S12

## Selection and ordering data

| | Version | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Mechanical RESET** | | | | | | | |
| 3RB3980-0A | **Resetting plungers, holders and formers** | S6 ... S12 | **3RB3980-0A** | | 1 | 1 unit | 41F |
| 3SU1200-0FB10-0AA0 | **Pushbuttons with extended stroke** (12 mm), IP65, ⌀ 22 mm | S6 ... S12 | **3SU1200-0FB10-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0KG10-0AA0 | **Extension plungers** For compensation of the distance between the pushbutton and the resetting plunger of the relay | S6 ... S12 | **3SU1900-0KG10-0AA0** | | 1 | 1 unit | 41J |
| **Cable releases with holder for RESET** | | | | | | | |
| 3RU3980-0B | For ⌀ 6.5 mm holes in the control panel; max. control panel thickness 8 mm | | | | | | |
| | • Length 400 mm | S6 ... S12 | **3RB3980-0B** | | 1 | 1 unit | 41F |
| | • Length 600 mm | S6 ... S12 | **3RB3980-0C** | | 1 | 1 unit | 41F |
| **Sealable covers** | | | | | | | |
| 3RB3984-0 | For covering the setting knobs | S6 ... S12 | **3RB3984-0** | | 1 | 1 unit | 41F |
| **Terminal covers** | | | | | | | |
| 3RT1956-4EA1 | **Covers for cable lugs and busbar connections** | | | | | | |
| | • Length 100 mm | S6 | **3RT1956-4EA1** | | 1 | 1 unit | 41B |
| | • Length 120 mm | S10/S12 | **3RT1966-4EA1** | | 1 | 1 unit | 41B |
| | **Covers for box terminals** | | | | | | |
| | • Length 25 mm | S6 | **3RT1956-4EA2** | | 1 | 1 unit | 41B |
| | • Length 30 mm | S10/S12 | **3RT1966-4EA2** | | 1 | 1 unit | 41B |
|  3RT1956-4EA2 | **Covers for screw terminals** Between contactor and overload relay, without box terminals (1 unit required per combination) | S6 | **3RT1956-4EA3** | | 1 | 1 unit | 41B |
| | | S10/S12 | **3RT1966-4EA3** | | 1 | 1 unit | 41B |
| **Box terminal blocks** | | | | | | | |
|  3RT1955-4G | For round and ribbon cables | | | | | | |
| | • Up to 70 mm$^2$ | S6[1)] | **3RT1955-4G** | | 1 | 1 unit | 41B |
| | • Up to 120 mm$^2$ | S6 | **3RT1956-4G** | | 1 | 1 unit | 41B |
| | • Up to 240 mm$^2$ | S10/S12 | **3RT1966-4G** | | 1 | 1 unit | 41B |

1) In the scope of supply for 3RT1054-1 contactors (55 kW).

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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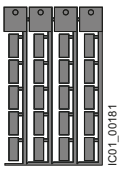
## Accessories for 3RB20, 3RB21

### *General accessories*

| | Version | Size | Color | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Tools for opening spring-loaded terminals** | | | | | | | | | |
| 3RA2908-1A | **Screwdrivers** For all SIRIUS devices with spring-loaded terminals | Length approx. 200 mm, 3.0 mm x 0.5 mm | Titanium gray/ black, partially insulated | Main and auxiliary circuit connection: 3RB2 | **Spring-loaded terminals** **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1] For SIRIUS devices | 20 mm x 7 mm | Titanium gray | 3RB2 | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | **Adhesive labels** For SIRIUS devices | 19 mm x 6 mm | Titanium gray | 3RB2 | **3RT2900-1SB60** | | 100 | 3 060 units | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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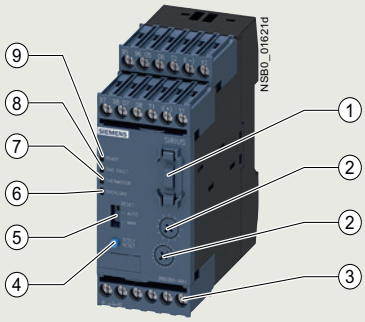
## Overview

**More information**

Homepage, see www.siemens.com/sirius-control
Industry Mall, see www.siemens.com/product?3RB2

Application Manual for switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820
Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/view/21833251
Characteristics and certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16280




1. 3RB2985 function expansion module:
   Enables more functions to be added, e.g. internal ground-fault detection and/or an analog output with corresponding signals.
2. Motor current and trip class setting:
   Setting the device to the motor current and to the required trip class dependent on the starting conditions is easy with the two rotary switches.
3. Connecting terminals (removable terminal block):
   The generously sized terminals permit connection of two conductors with different cross-sections for the auxiliary, control and sensor circuits. Connection is possible with screw terminals and alternatively with spring-loaded terminals.
4. Test/RESET button:
   Enables testing of all important device components and functions, plus resetting of the device after a trip when Manual RESET is selected.
5. Selector switch for Manual/Automatic RESET:
   With this switch you can choose between Manual and Automatic RESET.
6. Red LED "OVERLOAD":
   A continuous red light signals an active overload trip; a flickering red light signals an imminent trip (overload warning).
7. Red LED "THERMISTOR":
   A continuous red light signals an active thermistor trip.
8. Red LED "GND FAULT":
   A continuous red light signals a ground-fault tripping.
9. Green LED "READY":
   A continuous green light signals that the device is working correctly.

SIRIUS 3RB22 and 3RB23 evaluation modules

The 3RB22 and 3RB23 electronic overload relays up to 630 A (up to 820 A possible in combination with a series transformer) are from a modular system and comprise an evaluation unit, a current measuring module and a connecting cable. The 3RB22 overload relays (with monostable auxiliary contacts) and the 3RB23 overload relays (with bistable auxiliary contacts) are supplied from an external voltage.

They have been designed for inverse-time delayed protection of loads with normal and heavy starting against excessive temperature rises due to overload, phase asymmetry or phase failure. An overload, phase asymmetry or phase failure result in an increase of the motor current beyond the set rated motor current.

This current rise is detected by means of a current measuring module (see page 7/137) and electronically evaluated by the evaluation module which is connected to it. The evaluation electronics sends a signal to the auxiliary contacts. The auxiliary contacts then switch off the load by means of a contactor.

The break time depends on the ratio between the tripping current and the current setting $I_e$ and is stored in the form of a long-term stable tripping characteristic curve, see Characteristics. The "tripped" status is signaled by means of a continuously illuminated red "OVERLOAD" LED.

The LED indicates imminent tripping of the relay due to overload, phase asymmetry or phase failure by flickering when the limit current has been violated. In the case of the 3RB22 and 3RB23 overload relays this warning can also be issued through auxiliary contacts.

In addition to the described inverse-time delayed protection of loads against excessive temperature rises, the 3RB22 and 3RB23 electronic overload relays also allow direct temperature monitoring of the motor windings (full motor protection!) by connection with broken-wire interlock of a PTC sensor circuit. With this temperature-dependent protection, the loads can be protected against overheating caused, for example, indirectly by reduced coolant flow and which cannot be detected by means of the current alone. In the event of overheating, the devices switch off the contactor, and thus the load, by means of the auxiliary contacts. The "tripped" status is signaled by means of a continuously illuminated "THERMISTOR" LED.

To protect the loads against incomplete ground faults due to damage to the insulation, humidity, condensed water, etc., the 3RB22 and 3RB23 electronic overload relays offer the possibility of internal ground fault monitoring in conjunction with a function expansion module (for details, see Operating Instructions, not possible in conjunction with contactor assemblies for star-delta (wye-delta) starting). In the event of a ground fault, the 3RB22 and 3RB23 relays trip instantaneously.

The "tripped" status is signaled by means of a continuous red "Ground Fault" LED. Signaling through auxiliary contacts is also possible.

After tripping due to overload, phase asymmetry, phase failure, thermistor or ground-fault tripping, the relay is reset manually or automatically after the recovery time has elapsed.

In conjunction with a corresponding function expansion module, the motor current measured by the microprocessor can be output in the form of a DC 4 to 20 mA analog signal for operating rotary coil instruments or for feeding into analog inputs of programmable logic controllers.

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## 3RB22, 3RB23 for high-feature applications

With an additional AS-Interface analog module the current values can also be transferred via the AS-i bus system.

The 3RB2 electronic overload relays are suitable for operation with frequency converters.

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials. They comply with all important worldwide standards and approvals.

***Article number scheme***

| Product versions | | Article number |
|---|---|---|
| **Electronic overload relays** | | **3RB2** □ □ □ – □ □ □ □ |
| Device type | e.g. 2 = monostable device for high-feature applications, supplied from external source, for three-phase loads | □ |
| Size, rated operational current and power | e.g. 8 = irrespective of size and current | □ |
| Version of the Automatic RESET, electrical Remote RESET | e.g. 3 = switchable between Manual/Automatic RESET, with integral electrical Remote RESET | □ |
| Trip class (CLASS) | e.g. 4 = CLASS 5E, 10E, 20E, 30E (adjustable) | □ |
| Setting range of the overload release | e.g. A = none specified | □ |
| Connection methods | e.g. A = screw terminals for auxiliary, control and main circuits | □ |
| Installation type | e.g. 1 = stand-alone installation | □ |
| Example | | **3RB2 2 8 3 – 4 A A 1** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

***Use in hazardous areas***

The 3RB22 electronic overload relays (monostable) with the 3RB29 current measuring module are suitable for the overload protection of explosion-proof motors.

EC type-examination certificate for Category (2) G/D exists. It has the number PTB 05 ATEX 3022.

## Benefits

The most important features and benefits of the 3RB22 and 3RB23 electronic overload relays are listed in the overview table, see "General data", page 7/76 onwards.

## Application

***Industries***

The 3RB22 and 3RB23 electronic overload relays are suitable for customers from all industries who want to guarantee optimum inverse-time delayed and temperature-dependent protection of their electrical loads (e.g. motors) under normal and heavy starting conditions (CLASS 5 to CLASS 30), minimize project completion times, inventories and power consumption, and optimize plant availability and maintenance management.

***Application***

The 3RB22 and 3RB23 devices have been designed for the protection of three-phase asynchronous and single-phase AC motors.

If single-phase AC motors are to be protected by the 3RB22 and 3RB23 electronic overload relays, the main conducting paths of the current measuring modules must be series-connected. For circuit diagrams, see Operating Instructions.

***Ambient conditions***

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, aging and temperature fluctuations.

For the temperature range from -25 to +60 °C, the 3RB22 and 3RB23 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

Configuration notes for use of the devices below -25 °C or above +60 °C on request.

***Use of SIRIUS protection devices in conjunction with IE3 and IE4 motors***

Note:

For the use of 3RB22 and 3RB23 electronic overload relays in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

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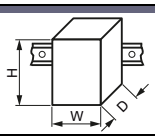
## Technical specifications

| More information | |
|---|---|
| Application Manual for switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820 | Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/view/21833251 |
| Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188 | Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16280/td |

The following technical information is intended to provide an initial overview of the various types of devices and functions.

| **Type – Overload relay: Evaluation modules** |  | | **3RB2283-4A.1** | **3RB2383-4A.1** |
|---|---|---|---|---|
| Size contactor | | | S00 ... S10/S12 | |
| Dimensions of evaluation modules (W x H x D) | | mm | 45 x 111 x 95 | |
| **General data** | | | | |
| **Tripping in the event of** | | | Overload, phase failure and phase asymmetry (> 40% according to NEMA), + ground fault (with corresponding function expansion module) and activation of the thermistor motor protection (with closed PTC sensor circuit) | |
| **Trip class** according to IEC 60947-4-1 | | CLASS | 5E, 10E, 20E and 30E adjustable | |
| **Phase failure sensitivity** | | | Yes | |
| **Overload warning** | | | Yes, from 1.125 × $I_e$ for symmetrical loads and from 0.85 × $I_e$ for asymmetrical loads | |
| **Reset and recovery** | | | | |
| • Reset options after tripping | | | Manual, Automatic and Remote RESET | |
| • Recovery time | | | | |
| - For Automatic RESET | | min. | - For tripping due to overcurrent: 3 (stored permanently)<br>- For tripping by thermistor: time until the motor temperature has fallen 5 K below the response temperature<br>- For tripping due to a ground fault: no Automatic RESET | |
| - For Manual RESET | | min. | - For tripping due to overcurrent: 3 (stored permanently)<br>- For tripping by thermistor: time until the motor temperature has fallen 5 K below the response temperature<br>- For tripping due to a ground fault: immediately | |
| - For Remote RESET | | min. | - For tripping due to overcurrent: 3 (stored permanently)<br>- For tripping by thermistor: time until the motor temperature has fallen 5 K below the response temperature<br>- For tripping due to a ground fault: immediately | |
| **Features** | | | | |
| • Display of operating state on device | | | Yes, with four LEDs:<br>- Green LED "Ready"<br>- Red LED "Ground Fault"<br>- Red LED "Thermistor"<br>- Red LED "Overload" | |
| • TEST function | | | Yes, test of LEDs, electronics, auxiliary contacts and wiring of control circuit by pressing the button TEST/RESET/self-monitoring | |
| • RESET button | | | Yes, with the TEST/RESET button | |
| • STOP button | | | No | |
| **Protection and operation of explosion-proof motors** | | | | |
| Certificate of suitability/explosion protection type according to ATEX Directive 2014/34/EU | | | PTB 05 ATEX 3022 Ex II (2) GD see https://support.automation.siemens.com/WW/view/en/23115758 | -- |
| **Ambient temperatures** | | | | |
| • Storage/transport | | °C | -40 ... +80 | |
| • Operation | | °C | -25 ... +60 | |
| • Temperature compensation | | °C | +60 | |
| • Permissible rated current | | | | |
| - Temperature inside control cabinet 60 °C | | % | 100 | |
| - Temperature inside control cabinet 70 °C | | % | On request | |
| **Degree of protection IP on the front** according to IEC 60529 | | | IP20 | |
| **Touch protection on the front** according to IEC 60529 | | | Finger-safe for vertical touching from the front | |
| **Shock resistance with sine** according to IEC 60068-2-27 | | *g*/ms | 15/11 | |

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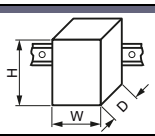
## 3RB22, 3RB23 for high-feature applications

| Type – Overload relay: Evaluation modules |  | | 3RB2283-4A.1 | 3RB2383-4A.1 |
|---|---|---|---|---|
| Size contactor | | | S00 ... S10/S12 | |
| Dimensions of evaluation modules (W x H x D) | | mm | 45 x 111 x 95 | |

### General data (continued)

| | | |
|---|---|---|
| **Electromagnetic compatibility (EMC) – Interference immunity** | | |
| • Conductor-related interference | | |
| - Burst according to IEC 61000-4-4 (corresponds to degree of severity 3) | kV | 2 (power ports), 1 (signal port) |
| - Surge according to IEC 61000-4-5 (corresponds to degree of severity 3) | kV | 2 (line to earth), 1 (line to line) |
| • Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV | 8 (air discharge), 6 (contact discharge) |
| • Field-related interference according to IEC 61000-4-3 (corresponds to degree of severity 3) | V/m | 10 |
| **Electromagnetic compatibility (EMC) – Emitted interference** | | Degree of severity A according to EN 55011 (CISPR 11) and EN 55022 (CISPR 22) |
| **Installation altitude above sea level** | m | Up to 2 000 |
| **Mounting position** | | Any |
| **Type of mounting** | | |
| • Evaluation modules | | Stand-alone installation |
| • Current measuring modules | Size | S00 to S3: Stand-alone installation,<br>S6 and S10/S12: Stand-alone installation or mounting on contactors |

| Type – Overload relay: Evaluation modules | | 3RB2283-4A.1, 3RB2383-4A.1 |
|---|---|---|
| Size contactor | | S00 ... S10/S12 |
| **Auxiliary circuit** | | |
| **Number of NO contacts** | | 2 |
| **Number of NC contacts** | | 2 |
| **Number of CO contacts** | | -- |
| **Auxiliary contacts – Assignment** | | • Alternative 1<br>- 1 NO for the signal "tripped by overload and/or thermistor",<br>- 1 NC for disconnecting the contactor,<br>- 1 NO for the signal "tripped by ground fault",<br>- 1 NC for disconnecting the contactor<br>or[1)]<br>• Alternative 2<br>- 1 NO for the signal "tripped by overload and/or thermistor and/or ground fault",<br>- 1 NC for disconnecting the contactor,<br>- 1 NO for overload warning,<br>- 1 NC for disconnecting the contactor |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 300 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 |
| **Auxiliary contacts – Contact rating** | | |
| • NC, NO contact with alternating current AC-14/AC-15, rated operational current $I_e$ at $U_e$ | | |
| - 24 V | A | 6 |
| - 120 V | A | 6 |
| - 125 V | A | 6 |
| - 250 V | A | 3 |
| • NC, NO contacts with direct current DC-13, rated operational current $I_e$ at $U_e$ | | |
| - 24 V | A | 2 |
| - 60 V | A | 0.55 |
| - 110 V | A | 0.3 |
| - 125 V | A | 0.3 |
| - 250 V | A | 0.2 |
| • Conventional thermal current $I_{th}$ | A | 5 |
| • Contact reliability (suitability for PLC control; 17 V, 5 mA) | | Yes |
| **Short-circuit protection** | | |
| • With fuse, operational class gG | A | 6 |
| • With miniature circuit breaker, C characteristic | A | 1.6 |
| **Protective separation between auxiliary conducting paths** According to IEC 60947-1 | V | 300 |
| **CSA, UL and UR rated data** | | |
| **Auxiliary circuit – Switching capacity** | | B300, R300 |

[1)] The assignment of auxiliary contacts may be influenced by function expansion modules.

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| **Type – Overload relay: Evaluation modules** | | **3RB2283-4A.1, 3RB2383-4A.1** |
|---|---|---|
| Size contactor | | S00 ... S10/S12 |
| **Control circuit** | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 300 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 |
| **Rated control supply voltage $U_s$** | | |
| • 50/60 Hz AC | V | 24 ... 240 |
| • DC | V | 24 ... 240 |
| **Operating range** | | |
| • 50/60 Hz AC | | $0.85 \times U_{s\,min} \leq U_s \leq 1.1 \times U_{s\,max}$ |
| • DC | | $0.85 \times U_{s\,min} \leq U_s \leq 1.1 \times U_{s\,max}$ |
| **Rated power** | | |
| • 50/60 Hz AC | W | 0.5 |
| • DC | W | 0.5 |
| **Mains buffering time** | ms | 200 |
| **Sensor circuit** | | |
| **Thermistor motor protection (PTC thermistor sensor)** | | |
| • Summation cold resistance | kΩ | ≤ 1.5 |
| • Response value | kΩ | 3.4 ... 3.8 |
| • Return value | kΩ | 1.5 ... 1.65 |
| **Ground-fault detection** | | The information refers to sinusoidal residual currents at 50/60 Hz. |
| • Tripping value $I_\Delta$ [1] | | |
| - For $0.3 \times I_e < I_{motor} < 2.0 \times I_e$ | | $> 0.3 \times I_e$ |
| - For $2.0 \times I_e < I_{motor} < 8.0 \times I_e$ | | $> 0.15 \times I_{motor}$ |
| • Response time $t_{trip}$ | ms | 500 ... 1 000 |
| **Analog output [1][2]** | | |
| **Rated values** | | |
| • Output signal | mA | 4 ... 20 |
| • Measuring range | | 0 ... 1.25 x $I_e$<br>4 mA corresponds to 0 x $I_e$<br>16.8 mA corresponds to 1.0 x $I_e$<br>20 mA corresponds to 1.25 x $I_e$ |
| • Load, max. | Ω | 100 |
| **Conductor cross-sections for the auxiliary, control and sensor circuits as well as the analog output** | | |
| **Connection type** | | **Screw terminals** |
| **Terminal screw** | | M3, Pozidriv size 2 |
| **Operating devices** | mm | 3.0 x 0.5 |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | |
| • Solid or stranded | $mm^2$ | 1 x (0.5 ... 4)[3], 2 x (0.5 ... 2.5)[3] |
| • Finely stranded without end sleeve | $mm^2$ | -- |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 1 x (0.5 ... 2.5)[3], 2 x (0.5 ... 1.5)[3] |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) |
| **Connection type** | | **Spring-loaded terminals** |
| **Operating devices** | mm | 3.0 x 0.5 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | |
| • Solid or stranded | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded without end sleeve | $mm^2$ | -- |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.25 ... 1.5) |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 16) |

1) For the 3RB22 and 3RB23 overload relays in combination with a corresponding function expansion module.

2) Analog input modules, e.g. SM 331, must be configured for four-wire measuring transducers. In this case the analog input module must not supply current to the analog output of the 3RB22 and 3RB23 relay.

3) If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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## 3RB22, 3RB23 for high-feature applications

***Functions of the 3RB22 and 3RB23 evaluation modules in combination with the 3RB2985 function expansion modules***

| Evaluation modules | With function expansion module | Basic functions | Inputs | | |
|---|---|---|---|---|---|
| | | | A1/A2 | T1/T2 | Y1/Y2 |
| 3RB2283-4AA1<br>3RB2283-4AC1<br>3RB2383-4AA1<br>3RB2383-4AC1 | -- | Inverse-time delayed protection, temperature-dependent protection, electrical Remote RESET, overload warning | Power supply 24 ... 240 V AC/DC | Connection for PTC sensor | Electrical Remote RESET |
| | 3RB2985-2CA1 | Inverse-time delayed protection, temperature-dependent protection, internal ground-fault detection, electrical Remote RESET, overload warning | Power supply 24 ... 240 V AC/DC | Connection for PTC sensor | Electrical Remote RESET |
| | 3RB2985-2CB1 | Inverse-time delayed protection, temperature-dependent protection, internal ground-fault detection, electrical Remote RESET, ground-fault signal | Power supply 24 ... 240 V AC/DC | Connection for PTC sensor | Electrical Remote RESET |
| | 3RB2985-2AA0 | Inverse-time delayed protection, temperature-dependent protection, electrical Remote RESET, overload warning, analog output | Power supply 24 ... 240 V AC/DC | Connection for PTC sensor | Electrical Remote RESET |
| | 3RB2985-2AA1 | Inverse-time delayed protection, temperature-dependent protection, internal ground-fault detection, electrical Remote RESET, overload warning, analog output | Power supply 24 ... 240 V AC/DC | Connection for PTC sensor | Electrical Remote RESET |
| | 3RB2985-2AB1 | Inverse-time delayed protection, temperature-dependent protection, internal ground-fault detection, electrical Remote RESET, ground-fault signal, analog output | Power supply 24 ... 240 V AC/DC | Connection for PTC sensor | Electrical Remote RESET |

| Evaluation modules | With function expansion module | Outputs | | | | |
|---|---|---|---|---|---|---|
| | | I (–)/I (+) | 95/96 NC | 97/98 NO | 05/06 NC | 07/08 NO |
| 3RB2283-4AA1<br>3RB2283-4AC1<br>3RB2383-4AA1<br>3RB2383-4AC1 | -- | No | Disconnection of the contactor (inverse-time delayed/ temperature-dependent protection) | Signal "tripped" | Overload warning | Overload warning |
| | 3RB2985-2CA1 | No | Disconnection of the contactor (inverse-time delayed/ temperature-dependent protection + ground fault) | Signal "tripped" | Overload warning | Overload warning |
| | 3RB2985-2CB1 | No | Disconnection of the contactor (inverse-time delayed/ temperature-dependent protection) | Signal "tripped" | Disconnection of the contactor (ground fault) | Signal "ground-fault tripping" |
| | 3RB2985-2AA0 | Analog signal | Disconnection of the contactor (inverse-time delayed/ temperature-dependent protection) | Signal "tripped" | Overload warning | Overload warning |
| | 3RB2985-2AA1 | Analog signal | Disconnection of the contactor (inverse-time delayed/ temperature-dependent protection + ground fault) | Signal "tripped" | Overload warning | Overload warning |
| | 3RB2985-2AB1 | Analog signal | Disconnection of the contactor (inverse-time delayed/ temperature-dependent protection) | Signal "tripped" | Disconnection of the contactor (ground fault) | Signal "ground-fault tripping" |

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**IE3/IE4 ready** **3RB22, 3RB23 for high-feature applications**

***3RB22 and 3RB23 electronic overload relays (evaluation modules) for full motor protection for stand-alone installation, CLASS 5E, 10E, 20E and 30E (adjustable)***

| Type | 3RB2283-4A.1, 3RB2383-4A.1 |
|---|---|
| **Features and technical specifications** | |
| **Overload protection, phase failure protection and asymmetry protection** | ✓ |
| **Supplied from an external source** | ✓ 24 ... 240 V AC/DC |
| **Auxiliary contacts** | ✓ 2 NO + 2 NC |
| **Electrical Remote RESET integrated** | ✓ |
| **Four LEDs for operating and status displays** | ✓ |
| **TEST function and self-monitoring** | ✓ |
| **Internal ground-fault detection** | ✓ (with function expansion module) |
| **Screw or spring-loaded terminals for auxiliary, control and sensor circuits** | ✓ |
| **Input for PTC sensor circuit** | ✓ |
| **Analog output** | ✓ (with function expansion module) |

✓ Available

## Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41G

3RB2283-4AA1

3RB2283-4AC1

| Size contactor | Version | Screw terminals<br>Article No. | Price per PU | Spring-loaded terminals<br>Article No. | Price per PU |
|---|---|---|---|---|---|
| **Evaluation modules** | | | | | |
| S00 ... S12 | Monostable | **3RB2283-4AA1** | | **3RB2283-4AC1** | |
| | Bistable | **3RB2383-4AA1** | | **3RB2383-4AC1** | |

Note:

Overview of overload relays – matching contactors, see page 7/81.

Current measuring modules and related connecting cables, see page 7/137, general accessories, see page 7/138 onwards.

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## 3RB22, 3RB23 for high-feature applications *IE3/IE4* ready

***Function expansion modules for 3RB22 and 3RB23 overload relays (evaluation modules)***

| | Size contactor | Version | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Sizes S00 to S12** | | | | | | | | |
| | | For plugging into evaluation module (1 unit) | | | | | | |
| 3RB2985-2..1 | S00 ... S12 | **Analog Basic 1 modules**[1] Analog output 4 ... 20 mA DC, with overload warning | 3RB22, 3RB23 | **3RB2985-2AA0** | | 1 | 1 unit | 41F |
| | | **Analog Basic 1 GF modules**[1)2)] Analog output 4 ... 20 mA DC, with internal ground-fault detection and overload warning | 3RB22, 3RB23 | **3RB2985-2AA1** | | 1 | 1 unit | 41F |
| | | **Analog Basic 2 GF modules**[1)2)] Analog output 4 ... 20 mA DC, with internal ground-fault detection and ground-fault signaling | 3RB22, 3RB23 | **3RB2985-2AB1** | | 1 | 1 unit | 41F |
| | | **Basic 1 GF modules**[2)] with internal ground-fault detection and overload warning | 3RB22, 3RB23 | **3RB2985-2CA1** | | 1 | 1 unit | 41F |
| | | **Basic 2 GF modules**[2)] with internal ground-fault detection and ground-fault signaling | 3RB22, 3RB23 | **3RB2985-2CB1** | | 1 | 1 unit | 41F |

1) The analog signal 4 to 20 mA DC can be used for operating rotary coil instruments or for feeding into analog inputs of programmable logic controllers.

2) The following information on ground-fault protection refers to sinusoidal residual currents at 50/60 Hz:
- With a motor current of between 0.3 and 2 times the current setting $I_e$, the unit will trip at a ground-fault current equal to 30% of the current setting.
- With a motor current of between 2 and 8 times the current setting $I_e$, the unit will trip at a ground-fault current equal to 15% of the motor current.
- The response delay amounts to between 0.5 s and 1 s.

Note:

Analog input modules, e.g. SM 331, must be configured for four-wire measuring transducers. In this case the analog input module must not supply current to the analog output of the 3RB22/3RB23 relay.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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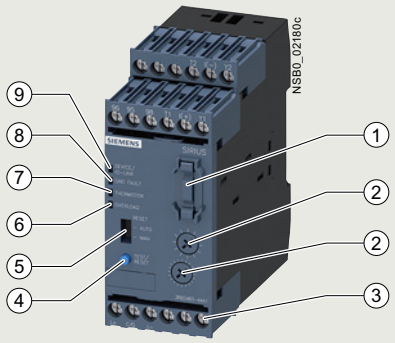
## Overview

**More information**

Homepage, see www.siemens.com/sirius-control
Industry Mall, see www.siemens.com/product?3RB2

Application Manual for switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820
Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/46165627
Certificates, see https://support.industry.siemens.com/cs/ww/en/ps/16281/cert




1. Plug-in point for operator panel:
enables connection of the 3RA6935-0A operator panel.
2. Motor current and trip class setting:
Setting the device to the motor current and to the required trip class dependent on the starting conditions is easy with the two rotary switches.
3. Connecting terminals (removable terminal block):
The generously sized terminals permit connection of two conductors with different cross-sections for the auxiliary, control and sensor circuits. Connection is possible with screw terminals and alternatively with spring-loaded terminals.
4. Test/RESET button:
Enables testing of all important device components and functions, plus resetting of the device after a trip when Manual RESET is selected.
5. Selector switch for Manual/Automatic RESET:
With this switch you can choose between Manual and Automatic RESET.
6. Red LED "OVERLOAD":
A continuous red light signals an active overload trip; a flickering led light signals an imminent trip (overload warning).
7. Red LED "THERMISTOR":
A continuous red light signals an active thermistor trip.
8. Red LED "GND FAULT":
A continuous red light signals an active ground-fault trip.
9. Green LED "DEVICE/IO-Link:
A continuous green light signals that the device is working correctly, a green flickering light signals the communication through IO-Link.

SIRIUS 3RB24 evaluation module

The modular, IO-Link powered 3RB24 electronic overload relays (with monostable auxiliary contacts) up to 630 A (up to 820 A possible with a series transformer) have been designed for inverse-time delayed protection of loads with normal and heavy starting against excessive temperature rises due to overload, phase asymmetry or phase failure. These comprise an evaluation unit, a current measuring module and a connecting cable.

The 3RB24 evaluation module also offers a motor starter function: The contactors, which are connected via the auxiliary contacts, can also be actuated for operation via IO-Link. In this way, direct, reversing and star-delta (wye-delta) starters up to 630 A (or 830 A) can be connected to the controller via the IO-Link.

An overload, phase asymmetry or phase failure result in an increase of the motor current beyond the set rated motor current.

This current rise is detected by means of the current measuring module (see page 7/137) and electronically evaluated by the evaluation module which is connected to it. The evaluation electronics sends a signal to the auxiliary contacts. The auxiliary contacts then switch off the load by means of a contactor.

The break time depends on the ratio between the tripping current and the current setting $I_e$ and is stored in the form of a long-term stable tripping characteristic curve, see Equipment Manual. The "tripped" status is signaled by means of a continuously illuminated red "OVERLOAD" LED and also reported as a group fault via IO-Link.

The LED indicates imminent tripping of the relay due to overload, phase asymmetry or phase failure by flickering when the limit current has been violated. This warning can also be reported to the higher-level PLC via IO-Link at the 3RB24 overload relays.

In addition to the described inverse-time delayed protection of loads against excessive temperature rises, the 3RB24 electronic overload relays also allow direct temperature monitoring of the motor windings (full motor protection!) by connection with broken-wire interlock of a PTC sensor circuit. With this temperature-dependent protection, the loads can be protected against overheating caused, for example, indirectly by reduced coolant flow and which cannot be detected by means of the current alone. In the event of overheating, the devices switch off the contactor, and thus the load, by means of the auxiliary contacts. The "tripped" status is signaled by means of a continuously illuminated "THERMISTOR" LED and also reported as a group fault via IO-Link.

To protect the loads against incomplete ground faults due to damage to the insulation, humidity, condensation, etc., the 3RB24 electronic overload relays offer the possibility of internal ground-fault detection (for details, see Equipment Manual, not possible in conjunction with contactor assemblies for star-delta (wye-delta) starting). In the event of a ground fault, the 3RB24 relays trip instantaneously.

The "tripped" status is signaled by means of a flashing red "Ground Fault" LED and reported at the 3RB24 overload relay as a group fault via IO-Link.

The reset after overload, phase asymmetry, phase failure, thermistor or ground-fault tripping is performed manually by key on site, via IO-Link or by electrical Remote RESET or automatically after the cooling time (motor model) or for thermistor protection after sufficient cooling. Trips in devices initiated by function monitoring systems (broken wire or short-circuit on the thermistor) can only be reset locally.

A motor current measured by the microprocessor can be output in the form of an analog signal 4 to 20 mA DC for operating rotary coil instruments or for feeding into analog inputs of programmable logic controllers.

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## 3RB24 for IO-Link for high-feature applications

The current values can be transmitted to the higher-level controller via IO-Link.

The 3RB24 electronic overload relay for IO-Link is suitable for operation with frequency converters.

The devices are manufactured in accordance with environmental guidelines and contain environmentally friendly and reusable materials. They comply with all important worldwide standards and approvals.

### *Use in hazardous areas*

The 3RB24 electronic overload relays for IO-Link with the 3RB29 current measuring module are suitable for the overload protection of motors with the following types of protection:

- Ex II (2) G [Ex e] [Ex d] [Ex px]
- Ex II (2) D [Ex t] [Ex p]

EC type-examination certificate for Group II, Category (2) G/D exists. It has the number PTB 11 ATEX 3014.

### *Article number scheme*

| **Product versions** | | **Article number** |
|---|---|---|
| **Electronic overload relays** | | **3RB2** □ □ □ – □ □ □ □ |
| Device type | e.g. 4 = monostable device for high-feature applications, supplied from external source (24 V DC), for three-phase loads | □ |
| Size, rated operational current and power | e.g. 8 = irrespective of size and current | □ |
| Version of the Automatic RESET, electrical Remote RESET | e.g. 3 = switchable between Manual/Automatic RESET, with integral electrical Remote RESET | □ |
| Trip class (CLASS) | e.g. 4 = CLASS 5E, 10E, 20E, 30E (adjustable) | □ |
| Setting range of the overload release | e.g. A = none specified | □ |
| Connection methods | e.g. A = screw terminals for auxiliary, control and main circuits | □ |
| Installation type | e.g. 1 = stand-alone installation | □ |
| Example | | **3RB2 4 8 3 – 4 A A 1** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Application

### *Industries*

The 3RB24 electronic overload relays are suitable for customers from all industries who want to guarantee optimum current and temperature-dependent protection of their electrical loads (e.g. motors) under normal and heavy starting conditions (CLASS 5E to 30E), minimize project completion times, inventories and energy consumption, and optimize plant availability and maintenance management.

### *Application*

The 3RB24 electronic overload relays have been designed for the protection of three-phase asynchronous and single-phase AC motors.

In addition to protection function, these devices can be used together with contactors as direct-on-line or reversing starters (star-delta (wye-delta) start also possible), which are controlled via IO-Link. This makes it possible to directly control drives via IO-Link from a higher-level controller or on site via the optional handheld device and also, for example, to return current values directly via IO-Link.

If single-phase AC motors are to be protected by the 3RB24 electronic overload relays, the main conducting paths of the current measuring modules must be series-connected (circuit diagrams, see Equipment Manual).

### *Ambient conditions*

The devices are insensitive to external influences such as shocks, corrosive ambient conditions, aging and temperature fluctuations.

In the temperature range from -25 to +60 °C, the 3RB24 electronic overload relays compensate the temperature in accordance with IEC 60947-4-1.

Configuration notes for use of the devices below -25 °C or above +60 °C on request.

### *Use of SIRIUS protection devices in conjunction with IE3 and IE4 motors*

Note:

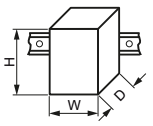
For the use of 3RB24 electronic overload relays in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

## Technical specifications

| More information | |
|---|---|
| Application Manual for switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/46165627 |
| Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188 | Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16281/td |

The following technical information is intended to provide an initial overview of the various types of devices and functions.

| | | | |
|---|---|---|---|
| **Type – Overload relay: Evaluation modules** |  | | **3RB2483-4A.1** |
| Size contactor | | | S00 ... S10/S12 |
| Dimensions of evaluation modules (W x H x D) | | mm | 45 x 111 x 95 |
| **General data** | | | |
| **Tripping in the event of** | | | Overload, phase failure and phase asymmetry (> 40% according to NEMA), + ground fault (connectable and disconnectable) and activation of the thermistor motor protection (with closed PTC sensor circuit) |
| **Trip class** according to IEC 60947-4-1 | | CLASS | 5E, 10E, 20E and 30E adjustable |
| **Phase failure sensitivity** | | | Yes |
| **Overload warning** | | | Yes, from 1.125 × $I_e$ for symmetrical loads and from 0.85 × $I_e$ for asymmetrical loads |
| **Reset and recovery** | | | |
| • Reset options after tripping | | | Manual and Automatic RESET, electrical Remote RESET or via IO-Link |
| • Recovery time | | | |
| - For Automatic RESET | | min. | - For tripping due to overcurrent: 3 (stored permanently)<br>- For tripping by thermistor: time until the motor temperature has fallen 5 K below the response temperature<br>- For tripping due to a ground fault: no Automatic RESET |
| - For Manual RESET | | min. | - For tripping due to overcurrent: 3 (stored permanently)<br>- For tripping by thermistor: time until the motor temperature has fallen 5 K below the response temperature<br>- For tripping due to a ground fault: immediately |
| - For Remote RESET | | min. | - For tripping due to overcurrent: 3 (stored permanently)<br>- For tripping by thermistor: time until the motor temperature has fallen 5 K below the response temperature<br>- For tripping due to a ground fault: immediately |

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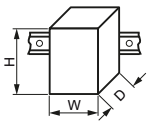
## 3RB24 for IO-Link for high-feature applications

| | | |
|---|---|---|
| **Type – Overload relay: Evaluation modules** |  | **3RB2483-4A.1** |
| Size contactor | | S00 ... S10/S12 |
| Dimensions of evaluation modules (W x H x D) | mm | 45 x 111 x 95 |

### General data (continued)

| | | |
|---|---|---|
| **Features** | | |
| • Display of operating state on device | | Yes, with four LEDs:<br>- Green "DEVICE/IO-Link" LED<br>- Red LED "Ground Fault"<br>- Red LED "Thermistor"<br>- Red LED "Overload" |
| • TEST function | | Yes, test of LEDs, electronics, auxiliary contacts and wiring of control circuit by pressing the TEST/RESET button/self-monitoring |
| • RESET button | | Yes, with the TEST/RESET button |
| • STOP button | | No |
| **Protection and operation of explosion-proof motors** | | |
| Certificate of suitability/explosion protection type according to ATEX Directive 2014/34/EU | | PTB 11 ATEX 3014<br>Ex II (2) G [Ex e] [Ex d] [Ex px]<br>Ex II (2) D [Ex t] [Ex p]<br>See https://support.industry.siemens.com/cs/ww/en/view/60524083 |
| **Ambient temperatures** | | |
| • Storage/transport | °C | -40 ... +80 |
| • Operation | °C | -25 ... +60 |
| • Temperature compensation | °C | +60 |
| • Permissible rated current | | |
| - Temperature inside control cabinet 60 °C | % | 100 |
| - Temperature inside control cabinet 70 °C | % | On request |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe for vertical touching from the front |
| **Shock resistance with sine** according to IEC 60068-2-27 | g/ms | 15/11 |
| **Electromagnetic compatibility (EMC) – Interference immunity** | | |
| • Conductor-related interference | | |
| - Burst according to IEC 61000-4-4 (corresponds to degree of severity 3) | kV | 2 (power ports), 1 (signal port) |
| - Surge according to IEC 61000-4-5 (corresponds to degree of severity 3) | kV | 2 (line to earth), 1 (line to line) |
| • Electrostatic discharge according to IEC 61000-4-2 (corresponds to degree of severity 3) | kV | 8 (air discharge), 6 (contact discharge) |
| • Field-related interference according to IEC 61000-4-3 (corresponds to degree of severity 3) | V/m | 10 |
| **Electromagnetic compatibility (EMC) – Emitted interference** | | Degree of severity A according to EN 55011 (CISPR 11) and EN 55022 (CISPR 22) |
| **Installation altitude above sea level** | m | Up to 2 000 |
| **Mounting position** | | Any |
| **Type of mounting** | | |
| • Evaluation modules | | Stand-alone installation |
| • Current measuring modules | Size | S00 to S3: Stand-alone installation,<br>S6 and S10/S12: Stand-alone installation or mounting on contactors |

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| | | |
|---|---|---|
| **Type – Overload relay: Evaluation modules** | | **3RB2483-4A.1** |
| Size contactor | | S00 ... S10/S12 |
| **Auxiliary circuit** | | |
| **Number of auxiliary switches** | | 1 CO contact, 1 NO contact connected in series internally |
| **Auxiliary contacts – Assignment** | | • 1 CO contact for selecting the contactor (for reversing starter function), actuated by the control system<br>• 1 NO contact for normal switching duty, actuated by the control system (opens automatically when tripping occurs) |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 300 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 |
| **Auxiliary contacts – Contact rating** | | |
| • NC, NO contact with alternating current AC-14/AC-15, rated operational current $I_e$ at $U_e$ | | |
| - 24 V | A | 6 |
| - 120 V | A | 6 |
| - 125 V | A | 6 |
| - 250 V | A | 3 |
| • NC, NO contacts with direct current DC-13, rated operational current $I_e$ at $U_e$ | | |
| - 24 V | A | 2 |
| - 60 V | A | 0.55 |
| - 110 V | A | 0.3 |
| - 125 V | A | 0.3 |
| - 250 V | A | 0.2 |
| • Conventional thermal current $I_{th}$ | A | 5 |
| • Contact reliability (suitability for PLC control; 17 V, 5 mA) | | Yes |
| **Short-circuit protection** | | |
| • With fuse, operational class gG | A | 6 |
| • With miniature circuit breaker, C characteristic | A | 1.6 |
| **Protective separation between auxiliary conducting paths** according to IEC 60947-1 | V | 300 |
| **CSA, UL and UR rated data** | | |
| **Auxiliary circuit – Switching capacity** | | B300, R300 |
| **Conductor cross-sections of the auxiliary circuit** | | |
| **Connection type** | | **Screw terminals** |
| **Terminal screw** | | M3, Pozidriv size 2 |
| **Operating devices** | mm | 3.0 x 0.5 |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | |
| • Solid or stranded | $mm^2$ | 1 x (0.5 ... 4)[1], 2 x (0.5 ... 2.5)[1] |
| • Finely stranded without end sleeve | $mm^2$ | -- |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 1 x (0.5 ... 2.5)[1], 2 x (0.5 ... 1.5)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) |
| **Connection type** | | **Spring-loaded terminals** |
| **Operating devices** | mm | 3.0 x 0.5 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | |
| • Solid or stranded | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded without end sleeve | $mm^2$ | – |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.25 ... 1.5) |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 16) |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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## 3RB24 for IO-Link for high-feature applications

| Type – Overload relay: Evaluation modules | | 3RB2483-4A.1 |
|---|---|---|
| Size contactor | | S00 ... S10/S12 |
| **Control circuit** | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | V | 300 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 |
| **Rated control supply voltage $U_s$** [1] | | |
| • DC | V | 24 via IO-Link |
| **Operating range** | | |
| • DC | | 0.85 x $U_{s\,min} \leq U_s \leq$ 1.1 x $U_{s\,max}$ |
| **Rated power** | | |
| • DC | W | 0.5 |
| **Mains buffering time** | ms | 200 |
| **Sensor circuit** | | |
| **Thermistor motor protection (PTC thermistor sensor)** | | |
| • Summation cold resistance | kΩ | ≤ 1.5 |
| • Response value | kΩ | 3.4 ... 3.8 |
| • Return value | kΩ | 1.5 ... 1.65 |
| **Ground-fault detection** | | The information refers to sinusoidal residual currents at 50/60 Hz. |
| • Tripping value $I_\Delta$ | | |
| - For 0.3 × $I_e$ < $I_{motor}$ < 2.0 × $I_e$ | | > 0.3 x $I_e$ |
| - For 2.0 × $I_e$ < $I_{motor}$ < 8.0 × $I_e$ | | > 0.15 x $I_{motor}$ |
| • Response time $t_{trip}$ | ms | 500 ... 1 000 |
| **Analog output** [1] | | |
| **Rated values** | | |
| • Output signal | mA | 4 ... 20 |
| • Measuring range | | 0 ... 1.25 x $I_e$<br>4 mA corresponds to 0 x $I_e$<br>16.8 mA corresponds to 1.0 x $I_e$<br>20 mA corresponds to 1.25 x $I_e$ |
| • Load, max. | Ω | 100 |
| **Conductor cross-sections for the control and sensor circuit as well as the analog output** | | |
| **Connection type** | | **Screw terminals** |
| **Terminal screw** | | M3, Pozidriv size 2 |
| **Operating devices** | mm | 3.0 x 0.5 |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | |
| • Solid | $mm^2$ | 1 x (0.5 ... 4)[2], 2 x (0.5 ... 2.5)[2] |
| • Finely stranded without end sleeve | $mm^2$ | -- |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 1 x (0.5 ... 2.5)[2], 2 x (0.5 ... 1.5)[2] |
| • Stranded | $mm^2$ | -- |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) |
| **Connection type** | | **Spring-loaded terminals** |
| **Operating devices** | mm | 3.0 x 0.5 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | |
| • Solid | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded without end sleeve | $mm^2$ | -- |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Stranded | $mm^2$ | 2 x (0.25 ... 1.5) |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 16) |

[1] Analog input modules, e.g. SM 331, must be configured for four-wire measuring transducers. The analog input module may not supply current to the analog output of the 3RB24 overload relay.

[2] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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**IE3/IE4 ready** **3RB24 for IO-Link for high-feature applications**

***3RB24 electronic overload relays (evaluation modules) for full motor protection for stand-alone installation, CLASS 5E, 10E, 20E and 30E (adjustable)***

| Type | 3RB2483-4A.1 |
|---|---|
| **Features and technical specifications** | |
| **Overload protection, phase failure protection and asymmetry protection** | ✓ |
| **Supplied from an external source** | ✓ 24 V DC via IO-Link |
| **Direct-on-line or reversing starters (star-delta (wye-delta) starting also possible) controllable via IO-Link** | ✓ |
| **Auxiliary contacts** | ✓ 1 CO and 1 NO in series |
| **Manual and Automatic RESET** | ✓ |
| **Remote RESET** | ✓ (electrically or via IO-Link) |
| **Four LEDs for operating and status displays** | ✓ |
| **TEST function and self-monitoring** | ✓ |
| **Internal ground-fault detection** | ✓ |
| **Screw or spring-loaded terminals for auxiliary, control and sensor circuits** | ✓ |
| **Input for thermistor (PTC) sensor circuit** | ✓ |
| **Analog output** | ✓ |
| **IO-Link-specific functions** | |
| • Connection of direct-on-line, reversing and star-delta (wye-delta) starters to the controller via IO-Link | ✓ |
| • On-site controlling of the starter using the handheld device | ✓ |
| • Accessing process data (e.g. current values in all three phases) via IO-Link | ✓ |
| • Accessing parameterization and diagnostics data (e.g. tripped signals) via IO-Link | ✓ |

✓ Available

## Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41G

3RB2483-4AA1

3RB2483-4AC1

| Size contactor | Version | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|
| | | Article No. | Price per PU | Article No. | Price per PU |
| **Evaluation modules** | | | | | |
| S00 ... S12 | Monostable | **3RB2483-4AA1** | | **3RB2483-4AC1** | |

Notes:

- Overview of overload relays – matching contactors, see page 7/81.
- Analog input modules, e.g. SM 331, must be configured for four-wire measuring transducers. The analog input module may not supply current to the analog output of the 3RB24 relay.

Current measuring modules and related connecting cables, see page 7/137. More accessories, see page 7/138 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Current measuring modules for 3RB22, 3RB23 and 3RB24

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-control<br>Industry Mall, see www.siemens.com/product?3RB2 | Application Manual for switching devices with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820<br>Other manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16282/man |

SIRIUS 3RB2906 current measuring module

The current measuring modules are designed as system components for connecting to 3RB22 to 3RB24 evaluation units. Using these evaluation units the motor current is measured and the measured value sent to the evaluation unit for evaluation.

The current measuring modules in sizes up to S3 are equipped with straight-through transformers and can be snap-fitted under the evaluation units. The larger evaluation units are installed directly on the contactor or as stand-alone units.

### Application

***Use of SIRIUS protection devices in conjunction with IE3 and IE4 motors***

Note:

For the use of current measuring modules for 3RB22, 3RB23, 3RB24 in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuration, see Application Manual.

For more information, see page 1/8.

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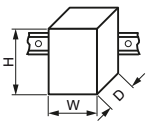
## Technical specifications

| More information | |
|---|---|
| Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16282/man | Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16282/td |

The following technical information is intended to provide an initial overview of the various types of devices and functions.

| **Type – Overload relays: Current measuring modules** |  | | **3RB2906** | | **3RB2956** | **3RB2966** |
|---|---|---|---|---|---|---|
| Size contactor | | | S00/S0 | S2/S3 | S6 | S10/S12 |
| Dimensions of current measuring modules (W x H x D) | | mm | 45 x 84 x 45 | 55 x 94 x 72 | 120 x 119 x 145 | 145 x 147 x 148 |
| **Main circuit** | | | | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | | V | 690 | | 1 000 | |
| **Rated impulse withstand voltage $U_{imp}$** | | kV | 6 | | 8 | |
| **Rated operational voltage $U_e$** | | V | 690 | | 1 000 | |
| **Type of current** | | | | | | |
| • Direct current | | | No | | | |
| • Alternating current | | | Yes, 50/60 Hz ±5% | | | |
| **Current setting** | | A | 0.3 ... 3; 2.4 ... 25 | 10 ... 100 | 20 ... 200 | 63 ... 630 |
| **Power loss per unit (max.)** | | W | 0.5 | | | |
| **Short-circuit protection** | | | | | | |
| • With fuse without contactor | | | See "Selection and ordering data", page 7/137 | | | |
| • With fuse and contactor | | | See Configuration Manual | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | | | | | |
| • Screw terminals/busbar connections | | | IP20 | | IP00 (IP20 with box terminal/cover) | |
| • Straight-through transformers | | | IP20 | | IP20 | -- |
| **Touch protection on the front** according to IEC 60529 | | | | | | |
| • Screw terminals/busbar connections | | | Finger-safe for vertical touching from the front | | Finger-safe for vertical touching from the front (with box terminals/cover) | |
| • Straight-through transformers | | | Finger-safe for vertical touching from the front | | Finger-safe for vertical touching from the front | -- |
| **Protective separation between main and auxiliary conducting paths** According to IEC 60947-1 (pollution degree 2) | | | | | | |
| • For systems with grounded neutral point | | V | 690 | | | |
| • For systems with ungrounded neutral point | | V | 600 | | | |

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## Current measuring modules for 3RB22, 3RB23 and 3RB24

| **Type – Overload relays: Current measuring modules** | | **3RB2906** | | **3RB2956** | **3RB2966** |
|---|---|---|---|---|---|
| Size contactor | | S00/S0 | S2/S3 | S6 | S10/S12 |
| Dimensions of current measuring modules (W x H x D) | mm | 45 x 84 x 45 | 55 x 94 x 72 | 120 x 119 x 145 | 145 x 147 x 148 |
| **Conductor cross-sections of main circuit** | | | | | |
| **Connection type** | | **Screw terminals with box terminal** | | | |
| **Terminal screw** | mm | -- | | 4 mm Allen screw | 5 mm Allen screw |
| **Operating devices** | mm | -- | | 4 mm Allen screw | 5 mm Allen screw |
| **Prescribed tightening torque** | Nm | -- | | 10 ... 12 | 20 ... 22 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | |
| • Solid or stranded | $mm^2$ | -- | | With 3RT1955-4G box terminal: 2 x (max. 70), 1 x (16 ... 70) | 2 x (70 ... 240), Front clamping point only: 1 x (95 ... 300) |
| | | | | With 3RT1956-4G box terminal: 2 x (max. 120), 1 x (16 ... 120) | Rear clamping point only: 1 x (120 ... 240) |
| • Finely stranded without end sleeve | $mm^2$ | -- | | With 3RT1955-4G box terminal: 2 x (1 x max. 50, 1 x max. 70), 1 x (10 ... 70) | 2 x (50 ... 185), Front clamping point only: 1 x (70 ... 240) |
| | | | | With 3RT1956-4G box terminal: 2 x (1 x max. 95, 1 x max. 120), 1 x (10 ... 120) | Rear clamping point only: 1 x (120 ... 185) |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | -- | | With 3RT1955-4G box terminal: 2 x (1 x max. 50, 1 x max. 70), 1 x (10 ... 70) | 2 x (50 ... 185), Front clamping point only: 1 x (70 ... 240) |
| | | | | With 3RT1956-4G box terminal: 2 x (1 x max. 95, 1 x max. 120), 1 x (10 ... 120) | Rear clamping point only: 1 x (120 ... 185) |
| • AWG cables | AWG | -- | | With 3RT1955-4G box terminal: 2 x (max. 1/0), 1 x (6 ... 2/0) | 2 x (2/0 ... 500 kcmil), Front clamping point only: 1 x (3/0 ... 600 kcmil) |
| | | | | With 3RT1956-4G box terminal: 2 x (max. 3/0), 1 x (6 ... 250 kcmil) | Rear clamping point only: 1 x (250 kcmil ... 500 kcmil) |
| • Ribbon cables (number x width x thickness) | mm | -- | | With 3RT1955-4G box terminal: 2 x (6 x 15.5 x 0.8), 1 x (3 x 9 x 0.8 ... 6 x 15.5 x 0.8) | 2 x (20 x 24 x 0.5), 1 x (6 x 9 x 0.8 ... 20 x 24 x 0.5) |
| | | | | With 3RT1956-4G box terminal: 2 x (10 x 15.5 x 0.8), 1 x (3 x 9 x 0.8 ... 10 x 15.5 x 0.8) | |
| **Connection type** | | **Busbar connections** | | | |
| **Terminal screw** | | -- | | M8 x 25 | M10 x 30 |
| **Prescribed tightening torque** | Nm | -- | | 10 ... 14 | 14 ... 24 |
| **Conductor cross-sections (min./max.),** one or two conductors can be connected | | | | | |
| • Solid with cable lug | $mm^2$ | -- | | 16 ... 95[1)] | 50 ... 240[2)] |
| • Stranded with cable lug | $mm^2$ | -- | | 25 ... 120[1)] | 70 ... 240[2)] |
| • AWG cables, solid or stranded, with cable lug | AWG | -- | | 4 ... 250 kcmil | 2/0 ... 500 kcmil |
| • With connecting bars (max. width) | mm | -- | | 17 | 25 |
| **Connection type** | | **Straight-through transformers** | | | |
| Diameter of opening | mm | 7.5 | 14 | 25 | -- |

1) When connecting cable lugs according to DIN 46235 with conductor cross-sections from 95 $mm^2$, the 3RT1956-4EA1 terminal cover must be used to ensure phase clearance, see page 7/138.

2) When connecting cable lugs according to DIN 46234 for conductor cross-sections from 240 $mm^2$, as well as DIN 46235 for cable cross-sections from 185 $mm^2$, the 3RT1956-4EA1 terminal cover must be used to ensure phase clearance, see page 7/138.

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## Selection and ordering data

### *Current measuring modules (essential accessories)*

3RB2906-2BG1

3RB2906-2DG1

3RB2906-2JG1

3RB2956-2TG2

3RB2966-2WH2

| Size contactor | Current setting value of the inverse-time delayed overload release | Short-circuit protection with fuse, type of coordination "2", operational class gG[1] | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | A | A | | | | | | |
| **Sizes S00/S0** | | | | | | | | |
| ***Devices with straight-through transformer for stand-alone installation*** | | | | | | | | |
| S00/S0 | 0.3 … 3 | 20 | 3RB22 to 3RB24 | **3RB2906-2BG1** | | 1 | 1 unit | 41G |
| | 2.4 … 25 | 63 | | **3RB2906-2DG1** | | 1 | 1 unit | 41G |
| **Sizes S2/S3** | | | | | | | | |
| ***Devices with straight-through transformer for stand-alone installation*** | | | | | | | | |
| S2/S3 | 10 … 100 | 315 | 3RB22 to 3RB24 | **3RB2906-2JG1** | | 1 | 1 unit | 41G |
| **Size S6** | | | | | | | | |
| ***Devices with busbar connection, for mounting on contactor and stand-alone installation*** (an appropriate connection kit with screws, spring washers and nuts is enclosed) | | | | | | | | |
| S6 | 20 … 200 | 315 | 3RB22 to 3RB24 | **3RB2956-2TH2** | | 1 | 1 unit | 41G |
| ***Devices with straight-through transformer, for mounting on contactor and stand-alone installation*** | | | | | | | | |
| For mounting on S6 contactors with box terminals | 20 … 200 | 315 | 3RB22 to 3RB24 | **3RB2956-2TG2** | | 1 | 1 unit | 41G |
| **Sizes S10/S12[2]** | | | | | | | | |
| ***Devices with busbar connection, for mounting on contactor and stand-alone installation*** (an appropriate connection kit with screws, spring washers and nuts is enclosed) | | | | | | | | |
| S10/S12 and size 14 (3TF68/3TF69)[2] | 63 … 630 | 800 | 3RB22 to 3RB24 | **3RB2966-2WH2** | | 1 | 1 unit | 41G |

[1] Maximum protection by fuse only for overload relays, type of coordination "2". For fuse values in connection with contactors, see Configuration Manual.

[2] For 3TF68/3TF69 contactors, direct mounting is not possible.

Note:

The connecting cable between the current measuring module and the evaluation module is not included in the scope of supply; please order separately (see "Accessories").

## Accessories

| Size contactor | Version | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Connecting cables (essential accessories)** | | | | | | | |
| 3RB2987-2D | For connection between evaluation module and current measuring module | | | | | | |
| S00 ... S3 | • Length 0.1 m (only for mounting of the evaluation module directly on the current measuring module) | 3RB22 to 3RB24 | **3RB2987-2B** | | 1 | 1 unit | 41F |
| S00 ... S12 | • Length 0.5 m | 3RB22 to 3RB24 | **3RB2987-2D** | | 1 | 1 unit | 41F |

Additional general accessories, see page 7/138.

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## Accessories for 3RB22, 3RB23, 3RB24

### Overview

**More information**

Homepage, see www.siemens.com/sirius-control
Industry Mall, see www.siemens.com/product?3RB2
Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/16283/man

The following optional accessories are available for the 3RB22 to 3RB24 electronic overload relays:

- Operator panel for the 3RB24 evaluation modules
- Sealable cover for the 3RB22 to 3RB24 evaluation modules
- Terminal covers for the 3RB29 current measuring modules size S6 and S10/S12
- Box terminal blocks for the 3RB29 current measuring modules size S6 and S10/S12
- Push-in lugs for screw fixing for 3RB22 to 3RB24 evaluation modules and 3RB2906 current measuring modules

### Selection and ordering data

***Accessories for 3RB24 overload relays***

| Version | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Operator panels for evaluation modules** | | | | | | |
| 3RA6935-0A<br>**Operator panels (set)**<br>One set comprises:<br>• 1 x operator panel<br>• 1 x 3RA6936-0A enabling module<br>• 1 x 3RA6936-0B interface cover<br>• 1 x fixing terminal<br>Note:<br>The connecting cable between the evaluation module and the operator panel is not included in the scope of supply; please order separately. | 3RB24 | **3RA6935-0A** | | 1 | 1 unit | 42F |
| **Connecting cable**<br>Length 2.5 m (round),<br>for connecting the evaluation module to the operator panel | 3RB24 | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| **Enabling modules (spare part)** | 3RB24 | **3RA6936-0A** | | 1 | 1 unit | 42F |
| **Interface covers** | 3RB24 | **3RA6936-0B** | | 1 | 5 units | 42F |

***General accessories***

| Version | Size | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Sealable covers for evaluation modules** | | | | | | | |
| 3RB2984-2<br>For covering the setting knobs | -- | 3RB22 to 3RB24 | **3RB2984-2** | | 1 | 10 units | 41F |
| **Terminal covers for current measuring modules** | | | | | | | |
| 3RT1956-4EA1<br>**Covers for cable lugs and busbar connections** | | | | | | | |
| • Length 100 mm | S6 | 3RB2956 | **3RT1956-4EA1** | | 1 | 1 unit | 41B |
| • Length 120 mm | S10/S12 | 3RB2966 | **3RT1966-4EA1** | | 1 | 1 unit | 41B |
| **Covers for box terminals** | | | | | | | |
| • Length 25 mm | S6 | 3RB2956 | **3RT1956-4EA2** | | 1 | 1 unit | 41B |
| • Length 30 mm | S10/S12 | 3RB2966 | **3RT1966-4EA2** | | 1 | 1 unit | 41B |
| 3RT1956-4EA2<br>**Covers for screw terminals**<br>Between contactor and overload relay, without box terminals<br>(1 unit required per combination) | S6<br>S10/S12 | 3RB2956<br>3RB2966 | **3RT1956-4EA3**<br>**3RT1966-4EA3** | | 1<br>1 | 1 unit<br>1 unit | 41B<br>41B |
| **Box terminal blocks for current measuring modules** | | | | | | | |
| 3RT1955-4G<br>For round and ribbon cables | | | | | | | |
| • Up to 70 mm$^2$ | S6[1)] | 3RB2956 | **3RT1955-4G** | | 1 | 1 unit | 41B |
| • Up to 120 mm$^2$ | S6 | 3RB2956 | **3RT1956-4G** | | 1 | 1 unit | 41B |
| • Up to 240 mm$^2$ | S10/S12 | 3RB2966 | **3RT1966-4G** | | 1 | 1 unit | 41B |

1) In the scope of supply for 3RT1054-1 contactors (55 kW).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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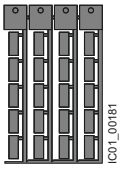
| | Version | Size | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Push-in lugs for evaluation modules and current measuring modules** | | | | | | | | |
| 3RP1903 | For screw fixing the evaluation modules | -- | 3RB22 to 3RB24 | **3RP1903** | | 1 | 10 units | 41H |
| 3RB1900-0B | For screw fixing the current measuring modules (2 units per module) | S00 ... S3 | 3RB2906 | **3RB1900-0B** | | 100 | 10 units | 41F |

| | Version | Size | Color | For overload relays | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Tools for opening spring-loaded terminals** | | | | | | | | | |
| | | | | | **Spring-loaded terminals** | | | | |
| 3RA2908-1A | **Screwdrivers** For all SIRIUS devices with spring-loaded terminals | Length approx. 200 mm, 3.0 mm x 0.5 mm | Titanium gray/ black, partially insulated | Main and auxiliary circuit connection: 3RB2 | **3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1] For SIRIUS devices | 20 mm x 7 mm | Titanium gray | 3RB2 | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | **Adhesive labels** For SIRIUS devices | 19 mm x 6 mm | Titanium gray | 3RB2 | **3RT2900-1SB60** | | 100 | 3 060 units | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

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## Notes

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# Load feeders and motor starters for use in the control cabinet

| | |
|---|---|
| | **Price groups**<br>PG 14O, 255, 41B, 41D, 41E, 41L, 42C, 42D, 42F, 42G |
| 8/2 | **Introduction** |
| | **SIRIUS 3RA2 load feeders** |
| 8/5 | General data |
| | 3RA21 direct-on-line starters |
| 8/22 | - for DIN-rail mounting or screw fixing |
| 8/30 | - for 60 mm busbars |
| | 3RA22 reversing starters |
| 8/34 | - for DIN-rail mounting or screw fixing |
| 8/40 | - for 60 mm busbars |
| 8/45 | Accessories |
| 8/56 | 3RV29 infeed system for load feeders |
| | **SIRIUS 3RA6 compact starters** |
| 8/57 | General data |
| | 3RA61, 3RA62 compact starters |
| 8/65 | - 3RA61 direct-on-line starters |
| 8/66 | - 3RA62 reversing starters |
| | 3RA64, 3RA65 compact starters for IO-Link |
| 8/67 | - 3RA64 direct-on-line starters |
| 8/68 | - 3RA65 reversing starters |
| 8/69 | Accessories |
| 8/74 | Add-on modules for AS-Interface |
| 8/76 | Infeed system for 3RA6 |
| 8/83 | **SIRIUS 3RM1 motor starters** |
| 8/94 | **ET 200SP motor starters** |

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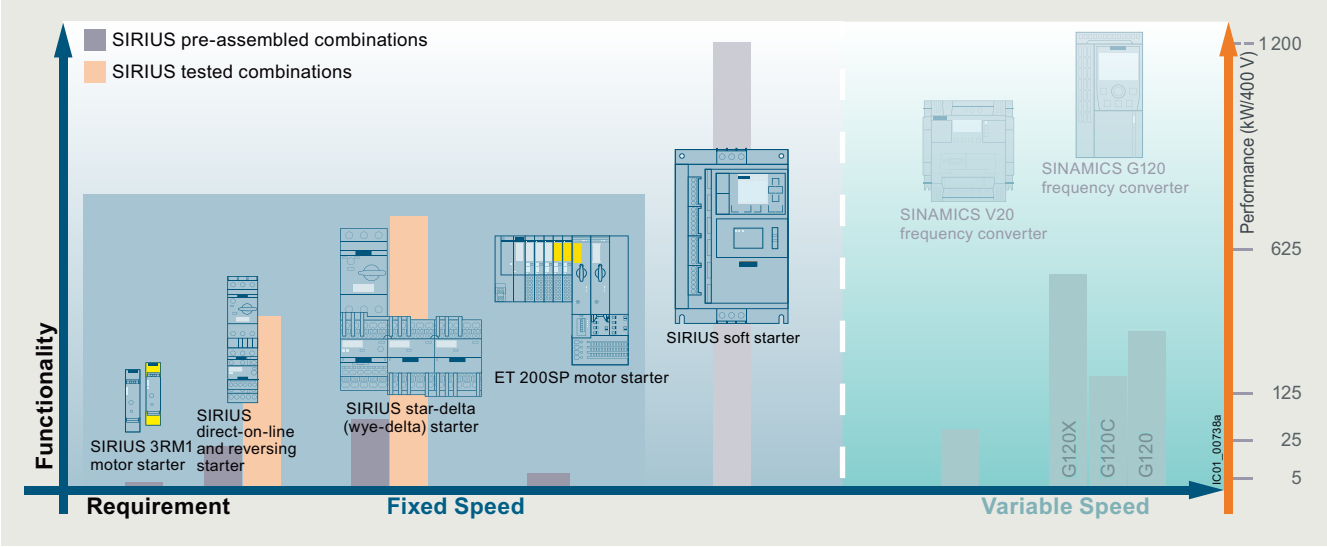
## Introduction

### Overview

***Central and compact starter solutions***

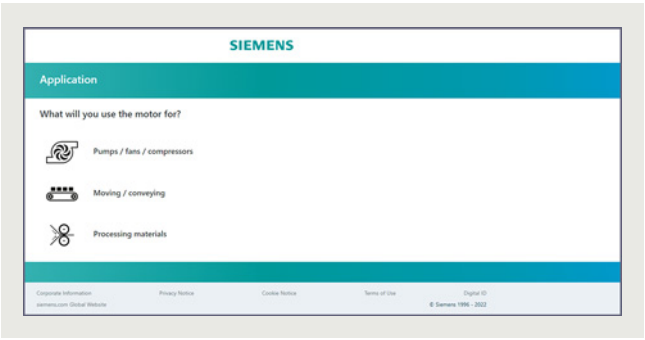
Our range offers you many different possibilities for simple and practical starter solutions in the control cabinet. Features common to all our load feeders, compact starters and motor starters: Like all SIRIUS devices they are optimally coordinated with each other, have a very compact design and are particularly easy and quick to install and wire up.

In addition there is a seamless range of SIRIUS 3RW soft starters available for soft starting in the control cabinet (see page 6/2).




Central and compact starter solutions

***Decision support for motor start – Starting and operating three-phase asynchronous motors efficiently***




Decision support tool for motor start

This tool guides you to the optimum individual drive solution via a short query about the application.

Based on this solution approach, you will then be directed to the right product configurator for selecting the appropriate products, see www.siemens.com/motorstart-guide.

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3RA2110

3RA2110

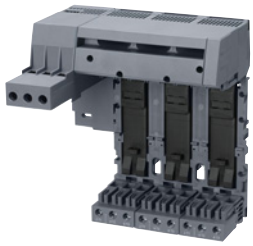
3RA2210

3RA2210

3RA2130
3RA2150

3RA61

3RA62


3RA68

| | | Type | Page |
|---|---|---|---|
| **SIRIUS 3RA2 load feeders** | | | |
| | • The 3RA2 fuseless load feeders consist of the 3RV2 motor starter protector and the 3RT2 contactor.<br>The motor starter protector and contactor are prewired and mechanically and electrically connected in prefabricated assembly kits (link modules, wiring kits and DIN-rail or busbar adapters)<br>• 4 sizes (S00, S0, S2, S3)<br>• Can be supplied for direct-on-line starting or reversing operation as<br>- a complete unit or<br>- single devices for self-assembly<br>• Can be supplied with screw or spring-loaded terminals | | |
| **3RA21 direct-on-line starters for DIN-rail mounting or screw fixing** | • Rated control supply voltage 50/60 Hz 230 V AC and 24 V DC | **3RA21** | 8/22 |
| **3RA21 direct-on-line starters for 60 mm busbars** | • Rated control supply voltage 50/60 Hz 230 V AC and 24 V DC | **3RA21** | 8/30 |
| **3RA22 reversing starters for DIN-rail mounting or screw fixing** | • Rated control supply voltage 50/60 Hz 230 V AC and 24 V DC | **3RA22** | 8/34 |
| **3RA22 reversing starters for 60 mm busbars** | • Rated control supply voltage 50/60 Hz 230 V AC and 24 V DC | **3RA22** | 8/40 |
| **Accessories for 3RA2 direct-on-line and reversing starters** | | | 8/45 |
| **Infeed system** | • The infeed system is a convenient means of energy supply and distribution for a group of several motor starter protectors or complete load feeders with screw or spring-loaded terminals up to size S0. | **3RV29** | 7/67, 8/56 |
| **SIRIUS 3RA6 compact starters** | | | |
| | • Integrated functionality of a motor starter protector, contactor and electronic overload relay and various functions of optional mountable accessories<br>• Can be used for direct starting of standard three-phase motors up to 32 A | | |
| **3RA61 direct-on-line starters** | • Up to 15 kW/400 V, weld-free, wide setting range, removable terminals | **3RA61** | 8/65 |
| **3RA62 reversing starters** | • Up to 15 kW/400 V, weld-free, wide setting range, removable terminals | **3RA62** | 8/66 |
| **3RA64 direct-on-line starters for IO-Link** | • Up to 15 kW/400 V, weld-free, wide setting range, removable terminals | **3RA64** | 8/67 |
| **3RA65 reversing starters for IO-Link** | • Up to 15 kW/400 V, weld-free, wide setting range, removable terminals | **3RA65** | 8/68 |
| **Accessories for 3RA6 direct-on-line and reversing starters** | | **3RA69** | 8/69 |
| **Add-on modules for AS-Interface** | | **3RA69** | 8/74 |
| **Infeed system for 3RA6** | • Modular expandability, up to 100 A, terminals up to 70 $mm^2$ | **3RA68** | 8/76 |
| | • 3-phase infeeds and expansion modules | | 8/79 |
| | • Expansion modules | | 8/80 |
| | • Accessories for infeed systems for 3RA6 | | 8/81 |

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# Load feeders and motor starters for use in the control cabinet

## Introduction

3RM12

3RM13

3RK1308

3RK1308

3RK1908-0

3RK1908-1A

| | | Type | Page |
|---|---|---|---|
| **SIRIUS 3RM1 motor starters** | | | |
| | • For switching three-phase motors up to 3 kW (at 400 V) and resistive loads up to 10 A at AC voltages up to 500 V under normal operating conditions<br>• Space-saving design (width 22.5 mm) | | |
| **3RM10 direct-on-line starters** | • Direct-on-line starting with electronic overload protection | **3RM10** | 8/90 |
| **3RM12 reversing starters** | • Reversing functionality with electronic overload protection | **3RM12** | 8/90 |
| **3RM11 Failsafe direct-on-line starters** | • As 3RM10 plus safety-related shutdown | **3RM11** | 8/90 |
| **3RM13 Failsafe reversing starters** | • As 3RM12 plus safety-related shutdown | **3RM13** | 8/90 |
| **Accessories for 3RM1 motor starters** | • 3RM19 3-phase infeed system for the main circuit | **3RM19** | 8/91 |
| | • Fuse modules for the use of 3RM1 motor starters on 8US busbar systems and mounting rails | **3RM19** | 8/88 |
| | • Adapters | **8US1** | 8/91 |
| | • Cover profiles | **8US1922** | 8/92 |
| | • Device connectors for the control circuit | **3ZY1212** | 8/92 |
| | • Spare terminals for main and control circuits | **3ZY11** | 8/93 |
| | • Push-in lugs for wall mounting, integrated sealable cover, coding pins | **3ZY1** | 8/93 |
| **ET 200SP motor starters** | | | |
| | • In hybrid technology in the SIMATIC ET 200SP I/O system<br>• For the switching and protection of three-phase asynchronous motors, 1-phase AC motors and 1-phase asynchronous motors up to 5.5 kW (at 400 V) | | |
| **3RK1308 direct-on-line starters** | • Direct-on-line starting with electronic overload protection | **3RK1308-0A.0** | 8/100 |
| **3RK1308 reversing starters** | • Reversing functionality with electronic overload protection | **3RK1308-0B.0** | 8/100 |
| **3RK1308 fail-safe direct-on-line starters** | • Direct-on-line starting with electronic overload protection | **3RK1308-0C.0** | 8/100 |
| **3RK1308 fail-safe reversing starters** | • Reversing functionality with electronic overload protection | **3RK1308-0D.0** | 8/100 |
| **BaseUnits** | • Mounting components for infeed and for integration into the ET 200SP I/O system | **3RK1908-0AP00** | 8/101 |
| **3DI/LC control module** | • Module with three digital inputs for the use of additional functions such as "Quick stop", and for manual-local operation | **3RK1908-1AA00** | 8/101 |
| **Accessories** | • Cover for BaseUnit and infeed bus, additional mechanical mounting unit, fan | **3RK19, 3RW49** | 8/102 |

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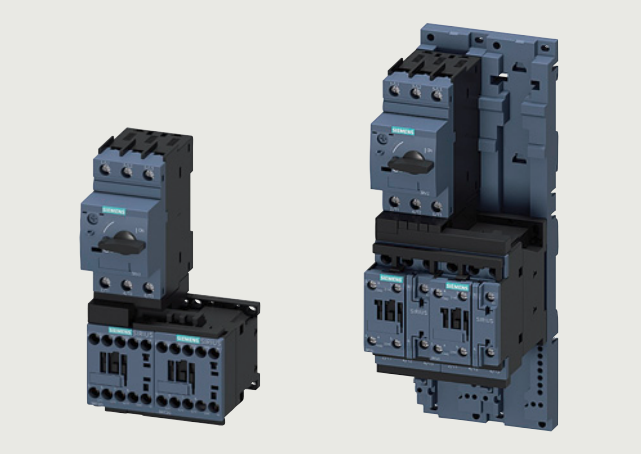
## Overview

### *3RA2 load feeders*



3RA22 reversing starters for DIN-rail mounting or screw fixing with screw terminals

The 3RA2 fuseless load feeders consist of the 3RV2 motor starter protector and the 3RT2 electromechanical contactor. The devices are electrically and mechanically connected using prefabricated assembly kits (link modules, wiring kits and DIN-rail or busbar adapters).

Around 500 preassembled 3RA2 combinations can be ordered for direct-on-line and reversing starting of standard three-phase motors up to 65 A (approx. 37 kW/400 V). Prefabricated assembly kits are available as accessories for the power spectrum up to 45 kW. The desired fuseless load feeder can thus be assembled quickly and economically by the customer. A time saving is also achieved in connection with switchgear acceptances, as – unlike with conventional wiring systems – there is no need to rectify possible wiring errors.

In the 3RA2 load feeder, the 3RV2 motor starter protector is responsible for overload and short-circuit protection. Back-up protective devices, such as melting fuses or limiters, are superfluous here, as the motor starter protector is short-circuit proof up to 150 kA at 400 V.

The 3RT2 contactor is particularly suitable for extremely complex switching tasks requiring the greatest endurance.

The 3RA2 load feeders are available with setting ranges from 0.14 to 65 A in sizes S00, S0 and S2. Load feeders in size S3 up to 100 A are available for customer assembly.

| Size | Width Direct-on-line starters/ reversing starters | Max. rated current $I_{n\ max}$ | For three-phase motors up to |
|---|---|---|---|
| | mm | A | kW |
| S00 | 45/90 | 16 | 7.5 |
| S0 | 45/90 | 32 | 15 |
| S2 | 55/120 | 65 | 37 |
| S3 | 70/150 | 100 | 45 |

The size of the 3RA2 load feeders is based on the size of the contactor:

| Size 3RA2 | S00 | S0 | S2 | S3 |
|---|---|---|---|---|
| Size of 3RV2 motor starter protector | S00 | S00[1], S0 | S2 | S3 |
| Size of 3RT2 contactor | S00 | S0 | S2 | S3 |

[1] The combination of an S00 motor starter protector with an S0 contactor is possible only for screw terminal versions.

**More information**

Homepage, see www.siemens.com/sirius-control

Industry Mall, see www.siemens.com/product?3RA2

Online configurator, see www.siemens.com/sirius/configurators

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=LoadFeeder

Decision support for motor start – Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide

### Operating conditions

3RA2 load feeders are climate-proof. They are intended for use in enclosed rooms in which no severe operating conditions (such as dust, caustic vapors, hazardous gases) prevail. Suitable covers must be provided for installation in dusty and damp locations.

### Behavior in the event of short circuit

EN 60947-4-1 (VDE 0660 Part 102) and IEC 60947-4-1 make a distinction between two different types of coordination, which are referred to as type of coordination "1" and type of coordination "2". Any short circuits that occur are cleared safely by both types of coordination. The only differences concern the extent of the damage caused to the device by a short circuit.

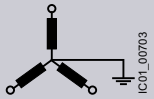
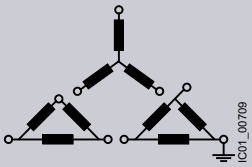
ToC 1 Type of coordination "1"
The load feeder may be non-operational after a short circuit has been cleared. Damage to the contactor or to the overload release is permissible.

ToC 2 Type of coordination "2"
There must be no damage to the overload release or to any other components after a short circuit has been cleared. The load feeder can resume operation without needing to be renewed. At most, welding of the contactor contacts is permissible if they can be disconnected easily without any significant deformation.

The types of coordination are indicated in the corresponding tables by the symbols shown on orange backgrounds.

### Voltage specifications

The specifications for 3-phase systems according to IEC 60947-4-1 apply for the following line system configurations:

| Voltage $U_e$ | Line system configurations | |
|---|---|---|
| | Three-phase four-wire systems | Three-phase three-wire systems |
| |  IC01_00703 |  IC01_00709 |
| V | V | V |
| 230 | -- | 230 |
| 400 | 230/400 | 400 |
| 440 | 260/440 | 440 |
| 500 | -- | 500 |
| 690 | 400/690 | 690 (only from size S3) |

-- Not specified

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## General data

Tripping times

All 3RA2 load feeders described here are designed for normal starting, in other words for overload tripping times of less than 10 s (CLASS 10). At rated-load operating temperature the tripping times are shorter, depending on the particular equipment and the setting range. The exact values can be derived from the tripping characteristics of the motor starter protectors.

Connection methods

For all 3RA2 feeders up to 32 A, spring-loaded terminals are available as well as screw terminals. To connect two devices with spring-loaded terminals, there are plug-in link module for sizes S00 and S0 which enable very quick mounting of the feeders and a vibration-resistant assembly.

To connect a motor starter protector with screw terminals to a contactor with spring-loaded terminals there are special hybrid link modules for the sizes S00 and S0.

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals |
| | The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds. |

***Use of load feeders in conjunction with IE3 and IE4 motors***

Note:

For the use of SIRIUS 3RA2 load feeders in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

***3RA2 complete units***

The 3RA2 fuseless load feeders can be ordered as preassembled complete units for direct-on-line starting (3RA21) or for reversing operation (3RA22) with screw or spring-loaded terminals. From size S2, complete units for direct-on-line starting (3RA21) are only available with screw terminals.

There are control supply voltages available of 50 Hz 230 V AC and 24 V DC.

A distinction is also drawn between whether the feeder is mounted on a 35 mm DIN rail, on a flat surface using screws, or on a 60 mm busbar system.

3RA21 load feeders in the S0 size must be configured on DIN-rail adapters if high vibration and shock loads (railways, Kraftwerk Union, etc.) are involved.

A vibration and shock kit is available for mounting on busbar adapters.

***Accessories***

As the 3RA2 fuseless load feeders are constructed from 3RV2 motor starter protectors and 3RT2 contactors, the same accessories – such as auxiliary switches, undervoltage releases or door-coupling rotary operating mechanisms – can be used for the 3RA2 fuseless load feeders as for these motor starter protectors and contactors.

In particular, certain accessories have been optimized for the fuseless load feeders. These include the top-connected, transverse auxiliary switch on the motor starter protector, which is available in a range of different versions. Special auxiliary switches that can be snapped on from below are available for the contactor. These two accessories enable the fuseless load feeders to be wired simply without having to route cables through the device.

***Incoming power supply***

In total, four different energy supply options are available (see "3RV29 infeed system for load feeders" on page 8/56).

***Customer assembly of fuseless load feeders***

Whereas preassembled 3RA2s can be ordered up to 65 A, combinations in size S3 up to 100 A (approx. 45 kW/400 V) are also possible for customer assembly.

The standard devices can be combined optimally – in terms of both technical specifications and dimensions, thanks to the modular system of the SIRIUS series.

The fuseless load feeders can thus be assembled easily by the customer. It is simply necessary to assemble the standard 3RV2 motor starter protector, the 3RT2 contactor and the appropriate assembly kit.

For single devices and assembly kits, see the "Selection and ordering data" for 3RA21 direct-on-line starters and 3RA22 reversing starters, page 8/22 or 8/34 onwards.

For assembly kits for direct-on-line starting or reversing operation for mounting onto DIN rails or busbars, see page 8/50.

For size S3 direct-on-line starters and sizes S0, S2 and S3 reversing starters, it is imperative that a DIN-rail adapter is used to ensure the necessary mechanical strength. If a busbar adapter is used (not possible for size S3) then a DIN-rail adapter is not necessary.

SENTRON 3VA circuit breakers and SIRIUS 3RT contactors are available for rated currents >100 A.

Single devices for customer assembly can be ordered if other rated control supply voltages are required. Assembly kits can be used to facilitate assembly.

Customers can also assemble tested combinations of motor starter protectors with electronic controls (soft starters, solid-state contactors) and load feeders with additional monitoring and control devices (3RR monitoring relays, SIMOCODE 3UF).

For the electrical and mechanical connection of protection equipment and controls, there are prefabricated assembly kits (link modules, wiring kits and DIN-rail or busbar adapters).

The following types of configuration are possible:

- Direct-on-line/reversing starting
- Star-delta (wye-delta) starting
- Solid-state/soft starting

For more information and assignment tables for combinations of the 3RA2 generation for self-assembly, see

- Configuration Manual for load feeders, https://support.industry.siemens.com/cs/ww/en/view/39714188
- Equipment Manual, https://support.industry.siemens.com/cs/ww/en/view/60284351

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***Customer assembly of fused load feeders***

The flexible, modular system of SIRIUS also enables the configuration of fused load feeders up to 100 A (approx. 45 kW/400 V). Up to 32 A is also available for 45 mm installation widths.

Compact 3NW7...-1 cylindrical fuse holders for IEC fuses size 10 x 38 mm, or 3NW7...-1HG holders for Class CC UL fuses, can be used for this purpose.

For more information about fuse systems, see Catalog LV 10.

***Communication link through IO-Link***

Load feeders can also be assembled with IO-Link for connection to the higher-level control system. For each feeder, this requires a contactor with a voltage tap onto which a 3RA2711 function module is plugged (various versions for direct-on-line, reversing and star-delta (wye-delta) starters). The design of the SIRIUS load feeders permits a group of up to four SIRIUS controls to be conveniently connected through the standardized open system IO-Link to a control system, thus reducing wiring considerably compared to the conventional parallel wiring method. The electrical connection is made using only three standard cables.

The function modules perform not only the communication (contactor operation and feedback, ready signal) but also the electrical interlocking (for reversing and star-delta (wye-delta) starters) and the timing relay function (star-delta (wye-delta) reversing time).

Communication information and control supply voltages are passed on through ribbon cables so that the complete control current wiring on the feeder is no longer needed.

The monitoring and maintenance of a plant is made considerably easier by transmitting diverse diagnostics data from the function modules (e.g. missing main and auxiliary voltage, local disconnection…) through IO-Link to the higher-level control system. Also, feeders equipped for IO-Link can be conveniently controlled from the control cabinet door using the optional operator panel.

More information:

- IO-Link, see page 2/88 onwards
- 3RA27 function modules, see pages 3/73, 3/80 and 3/101

***Communication link through AS-Interface***

Connection of the load feeders to the higher-level control system is possible not only through IO-Link but also through AS-Interface. The AS-Interface connection is recommended wherever load feeders are used in distributed applications. In this case, too, a contactor with a voltage tap is required with a corresponding 3RA2712 function module (various versions for direct-on-line, reversing and star-delta (wye-delta) starters). The devices are implemented in A/B technology, making it easy to connect up to 62 feeders to an AS-i master (regardless of whether they are direct-on-line, reversing or star-delta (wye-delta) starters). This results in a significant reduction of wiring compared to the conventional parallel wiring method. The electrical connection is made using standard cables.

The function modules perform not only the communication (contactor operation and feedback, ready signal) but also the electrical interlocking (for reversing and star-delta (wye-delta) starters) and the timing relay function (star-delta (wye-delta) reversing time).

Communication information and control supply voltages are passed on through ribbon cables so that the complete control current wiring on the starter is no longer needed.

More information:

- AS-Interface see page 2/19 onwards
- 3RA27 function modules, see pages 3/73, 3/80 and 3/101

***Contactors with voltage tap***

For configuring load feeders with communication links (AS-i/IO-Link), contactors with voltage taps are required. These contactors are not included as standard in the preassembled 3RA2 load feeders. A load feeder with communication link must be assembled therefore from single devices.

***Complete integration in the automation landscape***

As the result of the communication link through IO-Link or AS-i, the SIRIUS load feeders are fully integrated in the automation landscape and can draw on all the advantages of TIA (e.g. integration in the TIA Maintenance Station).

***Mounting***

3RA2 fuseless load feeders can be supplied:

- For mounting onto TH 35 DIN rails according to IEC 60715 (depth 15 mm)
- For mounting onto busbar adapters (busbar center-to-center clearance 60 mm, busbar thickness 5 to 10 mm with beveled edges)

The fuseless load feeders are also suitable for screw fixing using two 3RV2928-0B push-in lugs.

3RA2 fuseless load feeders can also be installed using the 3RV29 infeed system (S0 and S00 only, see page 7/67).

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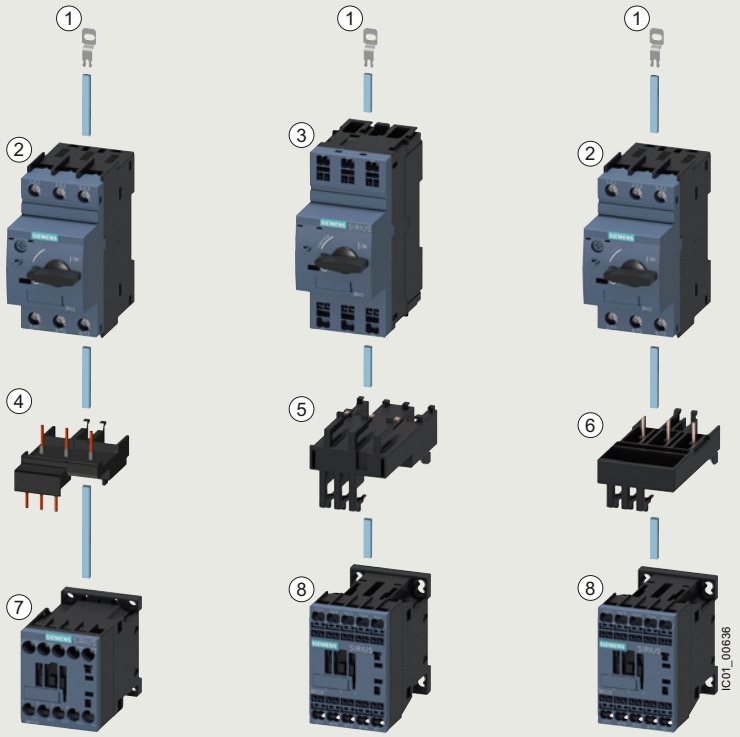
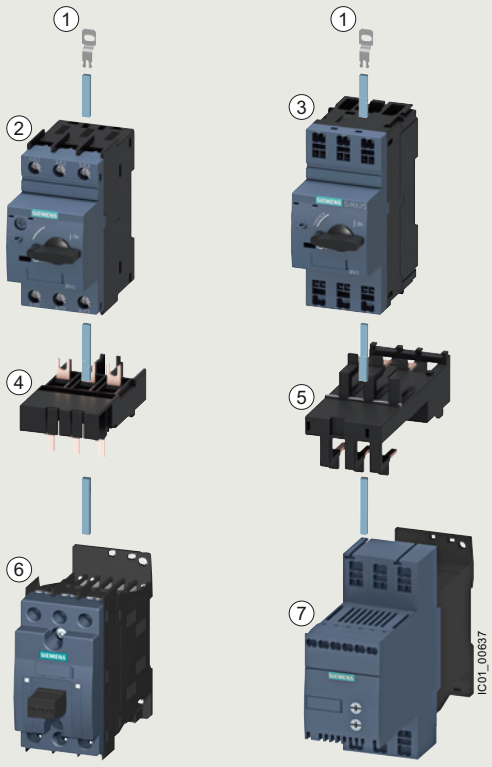
## General data

***Direct-on-line starting • For DIN-rail mounting or screw fixing • Sizes S00 and S0***




1. **2 push-in lugs**
   3RV2928-0B
   (only for screw fixing)
2. **Motor starter protector**
   Size S00/S0
   Screw terminals
3. **Motor starter protector**
   Size S00/S0
   Spring-loaded terminals
4. **Link module**
   (Screw terminals)
   3RA1921-1DA00 (for S00)
   3RA2921-1AA00 (for S0, AC contactor)
   3RA2921-1BA00 (for S0, DC contactor)
5. **Link module**
   (Spring-loaded terminals)
   3RA2911-2AA00 for S00
   3RA2921-2AA00 for S0
6. **Link module**
   (Hybrid)
   3RA2911-2FA00 for S00
   3RA2921-2FA00 for S0
7. **Contactor**
   Size S00/S0
   Screw terminals
8. **Contactor**
   Size S00/S0
   Spring-loaded terminals

Left: 3RA21 load feeder with screw terminals
Center: 3RA21 load feeder with spring-loaded terminals
Right: Combination of motor starter protector with screw terminals and contactor with spring-loaded terminals




1. **2 push-in lugs**
   3RV2928-0B
   (only for screw fixing)
2. **Motor starter protector**
   Size S00/S0
   Screw terminals
3. **Motor starter protector**
   Size S00/S0
   Screw terminals/spring-loaded terminals
4. **Link module**
   3RA2921-1BA00 (Screw terminals)
5. **Link module**
   3RA2921-1BA00 for S00/S0 and screw terminals
   3RA2911-2GA00 for S00 and spring-loaded terminals
   3RA2921-2GA00 for S0 and spring-loaded terminals
6. **Solid-state switching device** (Screw terminals)
7. **Soft starter**
   Size S00/S0
   Screw terminals/spring-loaded terminals

Left: Combination of motor starter protector and solid-state switching device with screw terminals
Right: Combination of motor starter protector and soft starter with spring-loaded terminals

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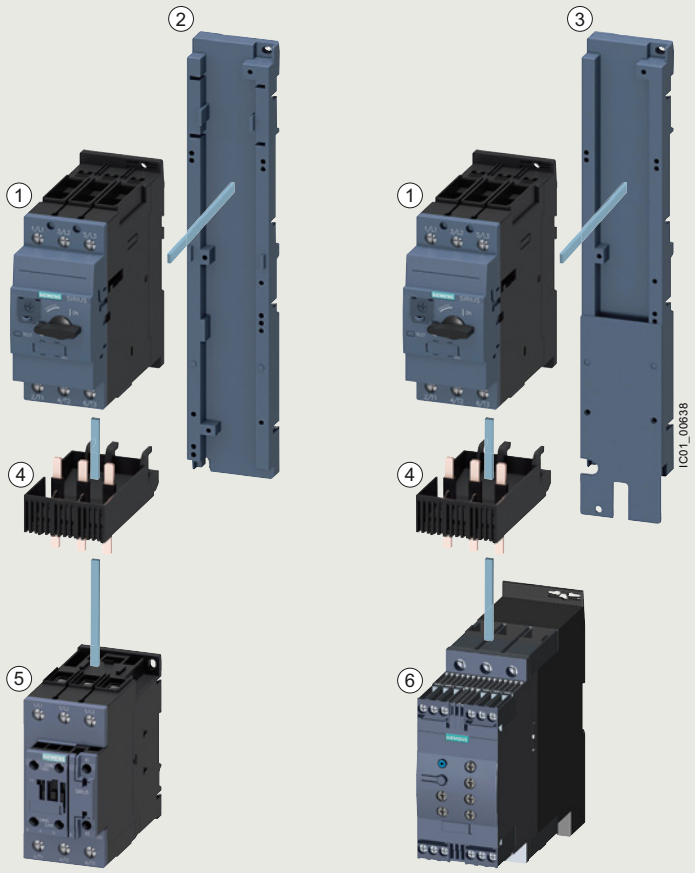
***Direct-on-line starting • For DIN-rail mounting • Size S2***




1. **Motor starter protector**
   Size S2
   Screw terminals
2. **DIN-rail adapter** (optional)
   3RA2932-1AA00
   Alternatively, the device can be mounted on two DIN rails spaced at a distance of 175 mm without a DIN-rail adapter.
3. **DIN-rail adapter**
   3RA2932-1CA00
4. **Link module**
   3RA2931-1AA00
   Screw terminals
5. **Contactor**
   Size S2
   Screw terminals
6. **Soft starter**
   Size S2
   Screw terminals

Left: 3RA21 load feeder with screw terminals
Right: Combination of motor starter protector and soft starter with screw terminals

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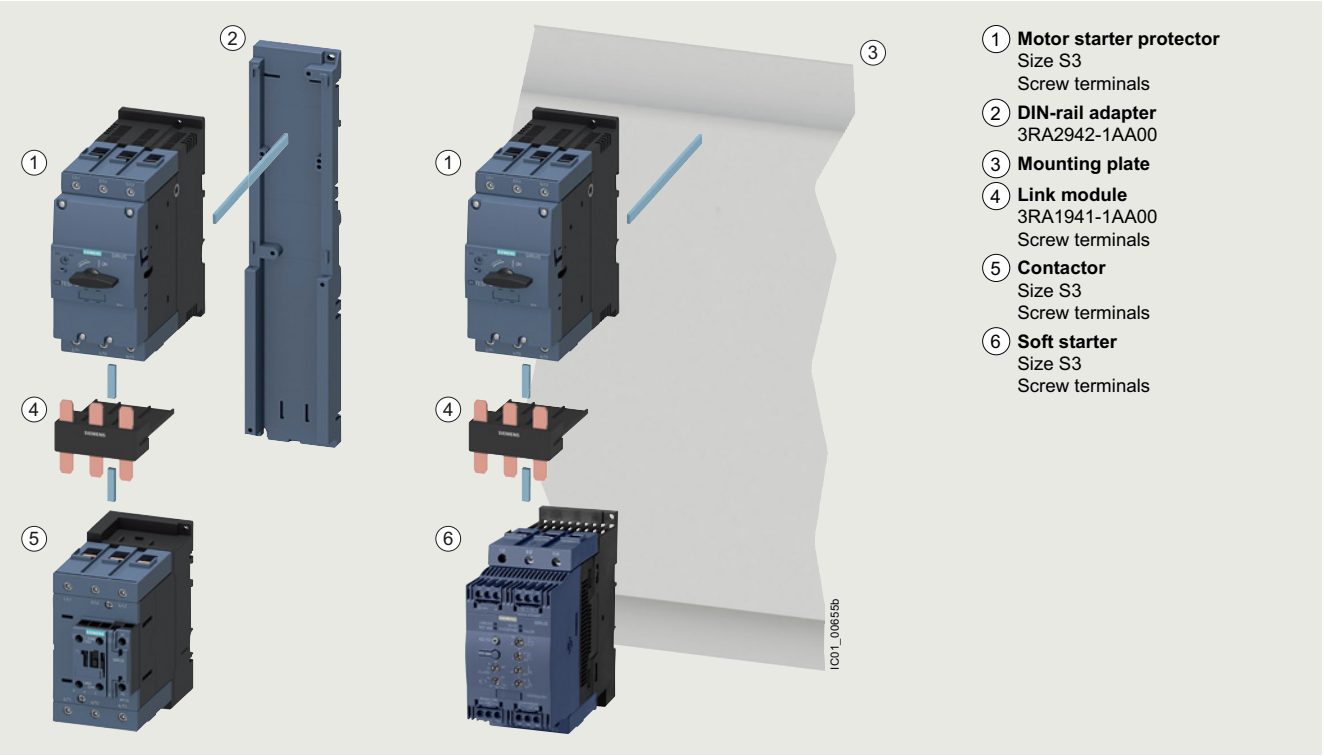
## General data

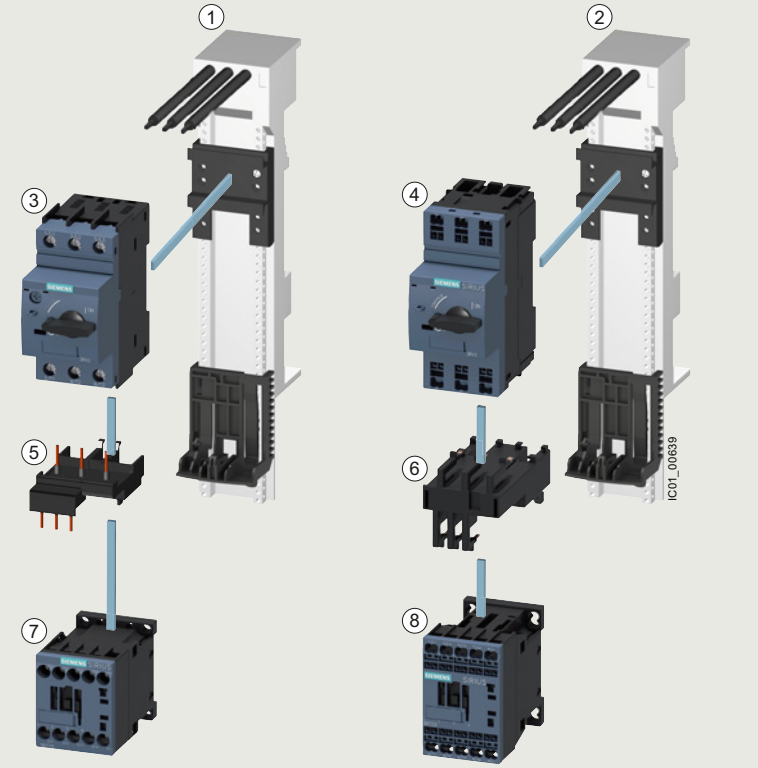
***Direct-on-line starting • For DIN-rail mounting • Size S3***




1. **Motor starter protector**
   Size S3
   Screw terminals
2. **DIN-rail adapter**
   3RA2942-1AA00
3. **Mounting plate**
4. **Link module**
   3RA1941-1AA00
   Screw terminals
5. **Contactor**
   Size S3
   Screw terminals
6. **Soft starter**
   Size S3
   Screw terminals

3RA21 load feeder for direct-on-line starting and DIN-rail mounting in size S3
(the version with screw terminals is shown in the picture)

***Direct-on-line starting • For 60 mm busbar systems • Sizes S00 and S0***




1. **60 mm busbar adapter for screw terminals**
   8US1251-5DS10 for S00
   8US1251-5NT10 for S0
2. **60 mm busbar adapter for spring-loaded terminals**
   8US1251-5DT11 for S00
   8US1251-5NT11 for S0
3. **Motor starter protector**
   Size S00/S0
   Screw terminals
4. **Motor starter protector**
   Size S00/S0
   Spring-loaded terminals
5. **Link module**
   Screw terminals
   3RA1921-1DA00 for S00
   3RA2921-1AA00 for S0, AC contactor
   3RA2921-1BA00 for S0, DC contactor
6. **Link module**
   3RA2911-2AA00 for S00
   3RA2921-2AA00 for S0
   (additional 3RA2911-1CA00 spacer for height compensation on AC contactors size S0 with spring-loaded terminals)
7. **Contactor**
   Size S00/S0
   Screw terminals
8. **Contactor**
   Size S00/S0
   Spring-loaded terminals

Left: 3RA21 load feeder for direct-on-line starting with busbar adapter with screw terminals
Right: 3RA21 load feeder for direct-on-line starting with busbar adapter with spring-loaded terminals

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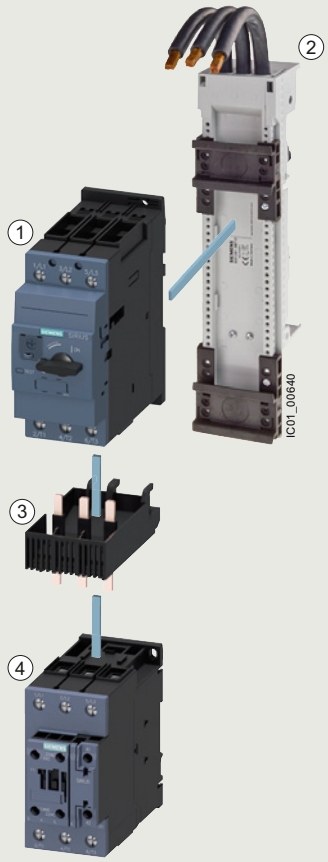
***Direct-on-line starting • For 60 mm busbar systems • Size S2***




1. **Motor starter protector**
   Size S2
   Screw terminals
2. **Busbar adapter 60 mm**
   8US1261-6MT10
3. **Link module**
   3RA2931-1AA00
   Screw terminals
4. **Contactor**
   Size S2
   Screw terminals

3RA21 load feeder for direct-on-line starting with busbar adapter with screw terminals

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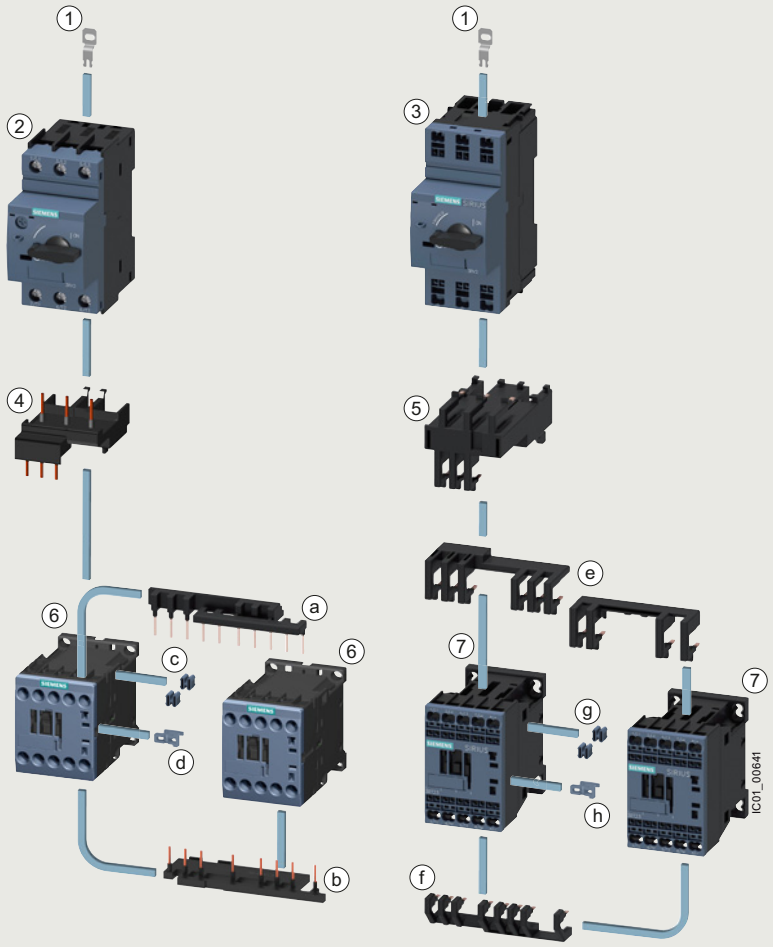
## General data

***Reversing operation • For DIN-rail mounting or screw fixing • Size S00***




1. **Push-in lug**
   3RV2928-0B
   (only for screw fixing)
2. **Motor starter protector**
   Size S00/S0
   Screw terminals
3. **Motor starter protector**
   Size S00/S0
   Spring-loaded terminals
4. **Link module**
   Screw terminals
   3RA1921-1DA00 for S00
   3RA2921-1AA00 for S0, AC contactor
   3RA2921-1BA00 for S0, DC contactor
5. **Link module**
   Spring-loaded terminals
   3RA2911-2AA00 for S00
   3RA2921-2AA00 for S0
6. **Contactor**
   Size S00/S0
   Screw terminals
7. **Contactor**
   Size S00/S0
   Spring-loaded terminals

**Wiring kit**
3RA2913-2AA1

a) Upper wiring module
b) Lower wiring module
c) Two connecting clips for two contactors
d) Mechanical interlock
(can be removed if necessary)

**Wiring kit**
3RA2913-2AA2

e) Upper wiring module
f) Lower wiring module
g) Two connecting clips for two contactors
h) Mechanical interlock
(can be removed if necessary)

Left: 3RA22 load feeder with screw terminals with push-in lugs with two contactors for reversing operation and wiring kit 3RA2913-2AA1 for connecting the contactors (including mechanical interlocking and connecting clips)
Right: 3RA22 load feeder with spring-loaded terminals with push-in lugs with two contactors for reversing operation and wiring kit 3RA2913-2AA2 (including mechanical interlocking and connecting clips)

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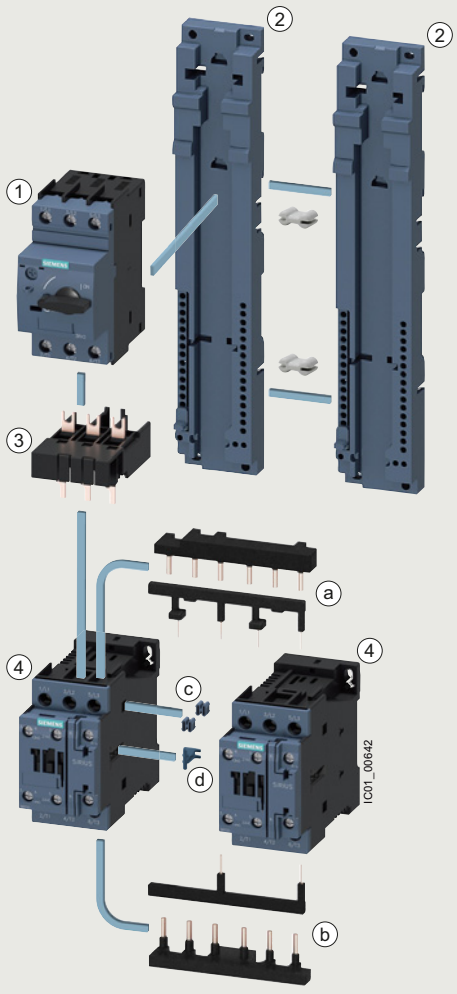
***Reversing operation • For DIN-rail mounting • Size S0***




**RH assembly kit for reversing operation and DIN-rail mounting in size S0**

Screw terminals
**3RA2923-1BB1**

Spring-loaded terminals
**3RA2923-1BB2**[1)]

Consisting of:
- Wiring kit for the main and auxiliary circuits
- Two DIN-rail adapters
- Two connecting wedges
- Mechanical interlock
- Two connecting clips
- Fixing accessories

(1) **Motor starter protector**
Size S0
Screw terminals/spring-loaded terminals

(2) **DIN-rail adapters**
3RA2922-1AA00
with two connecting wedges
8US1998-1AA00

(3) **Link module**
Screw terminals
3RA2921-1AA00 for S0, AC contactor
3RA2921-1BA00 for S0, DC contactor
Spring-loaded terminals
3RA2921-2AA00[2)]

(4) **Contactor**
Size S0
Screw terminals/spring-loaded terminals

**Wiring kit**
Screw terminals
3RA2923-2AA1

Spring-loaded terminals
3RA2923-2AA2

(a) Upper wiring module

(b) Lower wiring module

(c) Two connecting clips for two contactors

(d) Mechanical interlock
(can be removed if necessary)

[1)] Contains two 3RA2911-1CA00 spacers for height compensation on AC contactors size S0 with spring-loaded terminals.

[2)] Additionally two 3RA2911-1CA00 spacers for height compensation on AC contactors size S0 with spring-loaded terminals.

3RA22 load feeder for reversing operation and DIN-rail mounting in size S0 (the version with screw terminals is shown in the picture)

RH mounting kits for reversing operation and DIN-rail mounting in size S0, see page 8/52.

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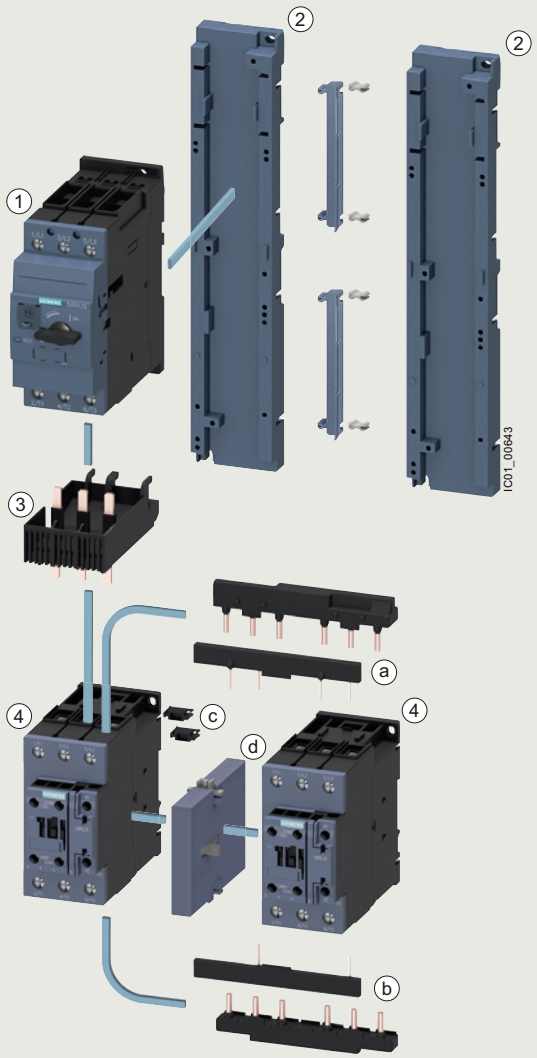
## General data

***Reversing operation • For DIN-rail mounting • Size S2***




**RH assembly kit for reversing operation and DIN-rail mounting in size S2**

**3RA2933-1BB1**

Consisting of:
- Wiring kit for the main and auxiliary circuits
- Two DIN-rail adapters
- Two side modules
- Four connecting wedges
- Mechanical interlock
- Two connectors for two contactors
- Fixing accessories

(1) **Motor starter protector**
Size S2
Screw terminals

(2) **DIN-rail adapter**
3RA2932-1AA00
with two side modules
3RA2902-1B
and four connecting wedges
8US1998-1AA00

(3) **Link module**
3RA2931-1AA00
Screw terminals

(4) **Contactor**
Size S2
Screw terminals

**Wiring kit**
Screw terminals
3RA2933-2AA1

(a) Upper wiring module

(b) Lower wiring module

(c) Two connectors for two contactors

(d) Mechanical interlock
3RA2934-2B (not part of the wiring kit, must be ordered separately)

3RA22 load feeder for reversing operation and DIN-rail mounting in size S2 (the version with screw terminals is shown in the picture)

RH mounting kits for reversing operation and DIN-rail mounting in size S2, see page 8/52.

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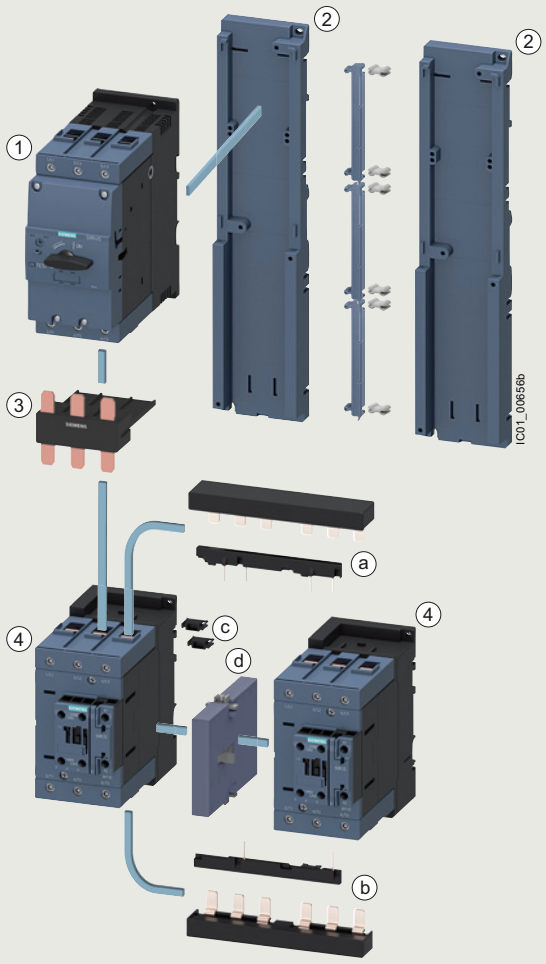
***Reversing operation • For DIN-rail mounting • Size S3***




**RH assembly kit for reversing operation and DIN-rail mounting in size S3**

**3RA2943-1BB1**

Consisting of:
- Wiring kit for the main and auxiliary circuits
- Two DIN-rail adapters
- Three side modules
- Six connecting wedges
- Mechanical interlock
- Two connectors for two contactors
- Fixing accessories

(1) **Motor starter protector**
Size S3

(2) **DIN-rail adapter**
3RA2942-1AA00
with two side modules
3RA2902-1B
and four connecting wedges
8US1998-1AA00

(3) **Link module**
3RA1941-1AA00

(4) **Contactor**
Size S3

**Wiring kit**
Screw terminals
3RA2943-2AA1
(a) Upper wiring module
(b) Lower wiring module
(c) Two connectors for two contactors
(d) Mechanical interlock
3RA2934-2B (not part of the wiring kit, must be ordered separately)

3RA22 load feeder for reversing operation and DIN-rail mounting in size S3 (the version with screw terminals is shown in the picture)

RH mounting kits for reversing operation and DIN-rail mounting in size S3, see page 8/52.

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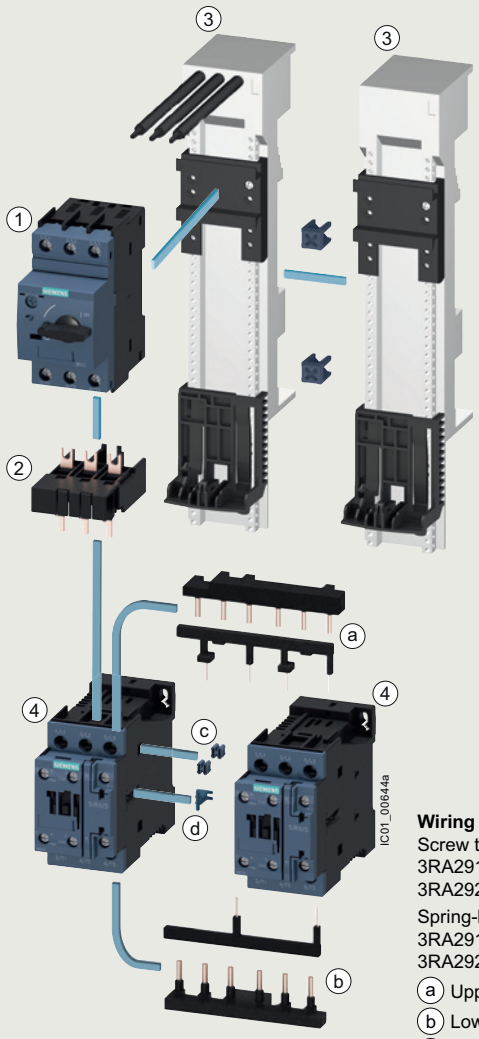
## General data

***Reversing operation • For 60 mm busbar systems • Sizes S00 and S0***




**Wiring kit**
Screw terminals
3RA2913-2AA1 for S00
3RA2923-2AA1 for S0
Spring-loaded terminals
3RA2913-2AA2 for S00
3RA2923-2AA2 for S0

(a) Upper wiring module
(b) Lower wiring module
(c) Two connecting clips for two contactors
(d) Mechanical interlock
(can be removed if necessary)

**RS assembly kit for reversing operation and busbar mounting in size S00/S0**

Screw terminals
**3RA2913-1DB1 for S00**
**3RA2923-1DB1 for S0**
Spring-loaded terminals
**3RA2913-1DB2 for S00**
**3RA2923-1DB2 for S0**[1)]
Consisting of:
- Wiring kit for the main and auxiliary circuits
- Busbar adapter
- Device holder
- Two connecting wedges
- Mechanical interlock
- Two connecting clips for two contactors
- Fixing accessories

(1) **Motor starter protector**
Size S00/S0
Screw terminals/spring-loaded terminals

(2) **Link module**
Screw terminals
3RA1921-1DA00 for S00
3RA2921-1AA00 for S0, AC contactor
3RA2921-1BA00 for S0, DC contactor
Spring-loaded terminals
3RA2911-2AA00 for S00
3RA2921-2AA00 for S0[2)]

(3) **60 mm busbar adapter**
Screw terminals
8US1251-5DS10 for S00/S0
8US1251-5NT10 for S0
Spring-loaded terminals
8US1251-5DT11 for S00/S0
8US1251-5NT11 for S0
With two connecting wedges
8US1998-1AA10

**60 mm device holder**
8US1250-5AS10 or
8US1250-5AT10
(according to length of left adapter)

(4) **Contactor**
Size S00/S0
Screw terminals/spring-loaded terminals

[1)] Contains two 3RA2911-1CA00 spacers for height compensation on AC contactors size S0 with spring-loaded terminals.

[2)] Additionally two 3RA2911-1CA00 spacers for height compensation on AC contactors size S0 with spring-loaded terminals.

3RA22 load feeder for reversing operation and 60 mm busbar
(the version with screw terminals is shown in the picture)

RS mounting kits for reversing operation and busbar mounting in size S00/S0, see page 8/54.

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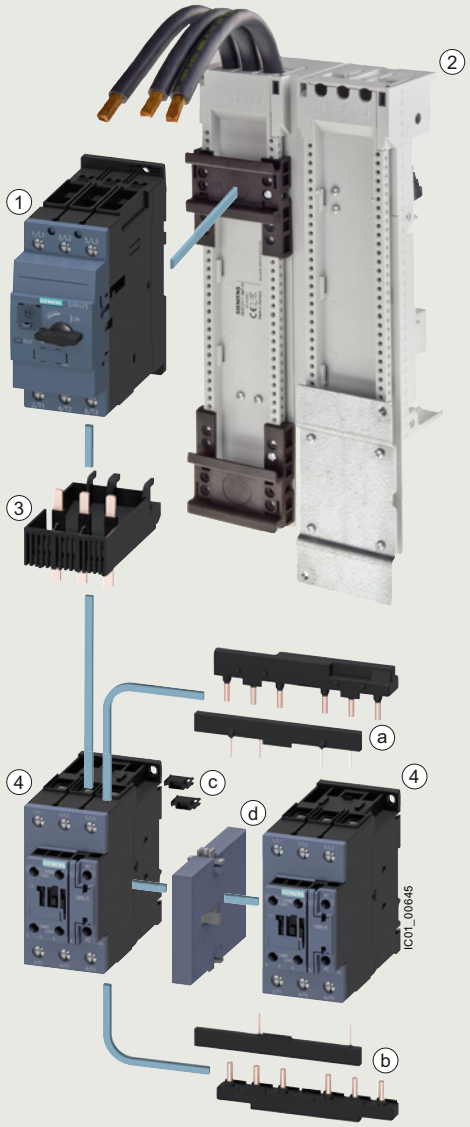
***Reversing operation • For 60 mm busbar systems • Size S2***




**RS assembly kit for reversing operation and busbar mounting in size S2**

**3RA2933-1DB1**

Consisting of:
- Wiring kit for the main and auxiliary circuits
- Busbar adapter
- Mechanical interlock
- Two connectors for two contactors
- Fixing accessories

(1) **Motor starter protector**
Size S2
Screw terminals

(2) **Busbar adapter 60 mm**
8US1211-6MT10

(3) **Link module**
3RA2931-1AA00
Screw terminals

(4) **Contactor**
Size S2
Screw terminals

**Wiring kit**
Screw terminals
3RA2933-2AA1

(a) Upper wiring module

(b) Lower wiring module

(c) Two connectors for two contactors

(d) Mechanical interlock
3RA2934-2B (not part of the wiring kit, must be ordered separately)

3RA22 load feeder for reversing operation and 60 mm busbar in size S2 (the version with screw terminals is shown in the picture)

RS mounting kits for reversing operation and busbar mounting in size S2, see page 8/54.

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## General data

***Article number scheme***

| Product versions | | Article number | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SIRIUS load feeders** | | **3RA2** | □ | □ | **0** | **–** | □ | □ | □ | □ | □ | **–** | □ | □ | □ | □ | |
| Product function | Direct-on-line starter | | **1** | | | | | | | | | | | | | | For motor standard output 0.06 ... 45 kW |
| | Reversing starter | | **2** | | | | | | | | | | | | | | For motor standard output 0.06 ... 45 kW |
| Size | S00 | | | **1** | | | | | | | | | | | | | |
| | S0 | | | **2** | | | | | | | | | | | | | |
| | e.g. 3 = S2 | | | □ | | | | | | | | | | | | | At $I_q$ = 100 kA at 400 V |
| | e.g. 5 = S2 | | | □ | | | | | | | | | | | | | At $I_q$ = 150 kA at 400 V |
| Setting range of the overload release | e.g. 0B = 0.14 ... 0.2 A | | | | | | □ | □ | | | | | | | | | |
| Assembly, assembly type, connection method | e.g. A = S00, S0, S2 | | | | | | | | □ | | | | | | | | Direct mounting, screw terminals |
| Contactor size, rated power at 400 V AC | e.g. 15 = S00/3 kW | | | | | | | | | □ | □ | | | | | | |
| Version Auxiliary switches on the contactor | e.g. 0 = S0, S2 | | | | | | | | | | | | □ | | | | 1 NO + 1 NC integrated in contactor |
| | e.g. 1 = S00 | | | | | | | | | | | | □ | | | | 1 NO integrated in contactor |
| | e.g. 2 = S00 | | | | | | | | | | | | □ | | | | 1 NC integrated in contactor |
| Operating range of solenoid coil (contactor) | e.g. A = S00, S0, S2 | | | | | | | | | | | | | □ | | | AC 0.8 x $U_{s\,min}$ ... 1.1 x $U_{s\,max}$, standard coil without RC circuit |
| Rated control supply voltage (contactor) | 230 V AC | | | | | | | | | | | | | | **P** | **0** | 50/60 Hz AC for S00, 50 Hz AC for S0 ... S3 |
| | 24 V DC | | | | | | | | | | | | | | **B** | **4** | |
| Example | | **3RA2** | **1** | **1** | **0** | **–** | **0** | **B** | **A** | **1** | **5** | **–** | **1** | **A** | **P** | **0** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

- Minimum planning and assembly work and far less wiring with the preassembled complete units (only one article number 3RA2)
- Plug-in connectors from the motor starter protector to all types of SIRIUS controls, for quicker and error-free assembly of feeders with screw and spring-loaded terminals
- High planning reliability through consistent combination tests for fuseless and fused configuration in accordance with IEC and UL/CSA
- Comprehensive approvals for use world-wide on request, see page 16/9 onwards.
- High operational reliability through short-circuit breaking capacity of 150 kA with type of coordination "1" and "2"
- Uniform accessories for sizes S00, S0, S2 and S3
- Spring-loaded terminals possible throughout: Enhanced operational reliability (vibration-resistant wiring) and less wiring work thanks to plug-in connections (S00 and S0 only)
- Power loss 5 to 10% smaller than for comparable devices, hence lower energy consumption
- Connection of feeders to the control system through standardized system connection (IO-Link and AS-i), for fast integration in TIA and less wiring work

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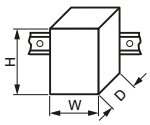
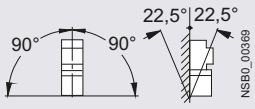
## Technical specifications

| More information | |
|---|---|
| Industry Mall, see www.siemens.com/product?3RA2 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16289/faq |
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/60284351 | |
| Configuration Manual, see https://support.industry.siemens.com/cs/ww/en/view/39714188 | |

| Direct-on-line starters/ reversing starters | Size | Connection method | Mounting | Control voltage | Width W | Height H | Depth D |
|---|---|---|---|---|---|---|---|
| | | | | | mm | mm | mm |
| **Mounting dimensions** | | | | | | | |
| Direct-on-line starters | S00 | Screw terminals | DIN rails | AC/DC | 45 | 167 | 97 |
| 3RA21. | 3RA211. | | Busbar adapters | AC/DC | 45 | 200 | 155 |
| (Size S3 or larger is only available for self-assembly) | | Spring-loaded terminals | DIN rails | AC/DC | 45 | 198 | 97 |
| | | | Busbar adapters | AC/DC | 45 | 260 | 155 |
|  | S0 | Screw terminals | DIN rails | AC | 45 | 193 | 97 |
| | 3RA212. | | | DC | 45 | 193 | 107 |
| | | | Busbar adapters | AC | 45 | 260 | 155 |
| | | | | DC | 45 | 260 | 165 |
| | | Spring-loaded terminals | DIN rails | AC/DC | 45 | 243 | 107 |
| | | | Busbar adapters | AC/DC | 45 | 260 | 165 |
| | S2 | Screw terminals | DIN rails | AC/DC | 55 | 274 | 150 |
| | 3RA213./3RA215. | | Busbar adapters | AC/DC | 55 | 350 | 208 |
| | S3 (self-assembly only) | Screw terminals | DIN-rail adapters | AC/DC | 70 | 333 | 198 |
| Reversing starters | S00 | Screw terminals | DIN rails | AC/DC | 90 | 170 | 97 |
| 3RA22. | 3RA221. | | Busbar adapters | AC/DC | 90 | 200 | 155 |
| (Size S2 or larger is only available for self-assembly) | | Spring-loaded terminals | DIN rails | AC/DC | 90 | 204 | 97 |
| | | | Busbar adapters | AC/DC | 90 | 260 | 155 |
| | S0 | Screw terminals | DIN-rail adapters | AC | 90 | 265 | 120.3 |
| | 3RA222. | | | DC | 90 | 265 | 130 |
| | | | Busbar adapters | AC | 90 | 260 | 155 |
| | | | | DC | 90 | 260 | 165 |
| | | Spring-loaded terminals | DIN-rail adapters | AC/DC | 90 | 270 | 131 |
| | | | Busbar adapters | AC/DC | 90 | 260 | 165 |
| | S2 (self-assembly only) | Screw terminals | DIN rails | AC/DC | 120 | 295 | 175 |
| | | | Busbar adapters | AC/DC | 120 | 361 | 208 |
| | S3 (self-assembly only) | Screw terminals | DIN-rail adapters | AC/DC | 150 | 333 | 198 |

| Type | | | 3RA2.1 | 3RA2.2 | 3RA213, 3RA215 | For self-assembly |
|---|---|---|---|---|---|---|
| Size | | | S00 | S0 | S2 | S3 |
| Number of poles | | | 3 | 3 | 3 | 3 |
| **Mechanics and environment** | | | | | | |
| **Permissible ambient temperature** | | | | | | |
| • During operation | | °C | -20 ... +60 | | | |
| • During storage and transport | | °C | -55 ... +80 | | | |
| **Weight** | | kg | 0.6 ... 1.5 | 0.8 ... 2.3 | 2.2 ... 2.5 | 4.0 ... 4.2 |
| **Permissible mounting position** | | |   Important: According to DIN 43602 start command "I" at the right or top | | | |
| **Shock resistance** | IEC 60068-2-27 | *g*/ms | 6/11 (sine pulse) | | | On request |
| **Degree of protection IP on the front** | According to IEC 60529 | | IP20 | | | |
| **Touch protection on the front** | According to IEC 60529 | | Finger-safe for vertical touching from the front | | | |

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## General data

| | | | | | | |
|---|---|---|---|---|---|---|
| **Type** | | | **3RA2.1** | **3RA2.2** | **3RA213, 3RA215** | **For self-assembly** |
| Size | | | **S00** | **S0** | **S2** | **S3** |
| Number of poles | | | **3** | **3** | **3** | **3** |
| **Electrical specifications** | | | | | | |
| **Standards** | | | • IEC 60947-1, EN 60947-1 (VDE 0660 Part 100)<br>• IEC 60947-2; EN 60947-2 (VDE 0660 Part 101)<br>• IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102) | | | |
| **Max. rated current $I_{n\ max}$** (= max. rated operational current $I_e$) | | A | 16 | 32 | 65 | 100 |
| **Rated operational voltage $U_e$** | | V | 690 | | | |
| **Rated frequency** | | Hz | 50/60 | | | |
| **Rated insulation voltage $U_i$** (pollution degree 3) | | V | 690 | | | |
| **Rated impulse withstand voltage $U_{imp}$** | | kV | 6 | | | |
| **Trip class (CLASS)** | According to IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102) | | 10 | | | |
| **Rated short-circuit current $I_q$** At 50/60 Hz 400 V AC | According to IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102) | kA | 150 | | 3RA213: 100<br>3RA215: 150 | With 3RV2041: 100<br>With 3RV2042: 150 |
| **Types of coordination** | According to IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102) | | See "Selection and ordering data", page 8/22 onwards | | | |
| **Power loss $P_v$ of all main conducting paths** Dependent on rated current $I_n$ (upper setting range) | | | See technical specifications of the individual devices:<br>• "Switching Devices - Contactors and Contactor Assemblies", page 3/25 onwards<br>• "Protection Equipment" → "Motor starter protectors/circuit breakers", page 7/18 onwards | | | |
| **Power consumption of the solenoid coils with contactors** | | | See technical specifications of the contactor, page 3/26 onwards | | | |
| **Solenoid coil operating range with contactors** | | | | | | |
| **Endurance of the motor starter protector** | | | | | | |
| • Mechanical endurance | | Operating cycles | 100 000 | | Up to 52 A: 50 000 | 25 000 |
| • Electrical endurance | | Operating cycles | 100 000 | | From 59 A: 20 000 | 25 000 |
| • Max. switching frequency per hour (motor starts) | | 1/h | 15 | | | |
| **Endurance of contactor** | | | | | | |
| • Mechanical endurance | | Operating cycles | 30 million | 10 million | | |
| • Electrical endurance | | Operating cycles | See endurance characteristic curves of the contactors, page 3/26 onwards | | | |
| **Phase failure sensitivity of the motor starter protector** | According to IEC 60947-1, EN 60947-1 (VDE 0660 Part 102) | | ✓ | | | |
| **Isolating features of the motor starter protector** | According to IEC 60947-2, EN 60947-2 (VDE 0660 Part 101) | | ✓ | | | |
| **Main and EMERGENCY STOP switch characteristics of the motor starter protector and accessories** | According to IEC 60204-1, EN 60204-1 (VDE 0113 Part 1) | | ✓ (With overvoltage releases of category "1" under conditions of proper use) | | | |
| **Protective separation** between main and auxiliary circuits | According to EN 60947-1, Annex N | V | Up to 400 | | | |
| **Mirror contacts for contactors** Integrated auxiliary switches | | | ✓ According to IEC 60947-4-1, Annex F | | | |

✓ Function available

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## Conductor cross-sections of main circuit

| Type | | 3RA2.10 | 3RA2.20 | 3RA2130-4E..., 3RA2130-4P..., 3RA2130-4U..., 3RA2130-4V... | 3RA2130-4W..., 3RA2130-4X..., 3RA2130-4J..., 3RA2130-4K..., 3RA2150 | For self-assembly |
|---|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | | S3 |
| **Connection type** | | **Screw terminals** | | | | **Screw terminals with box terminal** |
| **Terminal screw** | | M3, Pozidriv size 2 | M4, Pozidriv size 2 | M6, Pozidriv size 2 | | 4 mm Allen screw |
| **Operating devices** | mm | ⌀ 5 ... 6 | ⌀ 5 ... 6 | ⌀ 5 ... 6 | | Allen screw |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 | 2 ... 2.5 | 3.0 ... 4.5 | | 4.5 ... 6 |
| **Conductor cross-sections (min./max.),** 1 or 2 conductors can be connected | | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.75 ... 2.5)[1], 2 x (0.5 ... 1.5)[1], for contactor only 2 x 4 | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 10)[1] | 2 x (1 ... 25)[1], 1 x (1 ... 35)[1] | 2 x (1 ... 35)[1], 1 x (1 ... 50)[1] | 2 x (2.5 ... 16)[1] 2 x (10 ... 50)[1], 1 x (10 ... 70)[1] |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] | 2 x (1 ... 2.5)[1], 2 x (2.5 ... 6)[1], 1 x 10 | 2 x (1 ... 16)[1], 1 x (1 ... 25)[1] | 2 x (1 ... 25)[1], 1 x (1 ... 35)[1] | 2 x (2.5 ... 35)[1], 1 x (2.5 ... 50)[1] |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 16)[1], for contactor only 2 x (18 ... 14)[1], 2 x 12 | 2 x (16 ... 12)[1], 2 x (14 ... 8)[1] | 2 x (18 ... 3)[1], 1 x (18 ... 2)[1] | 2 x (18 ... 2)[1], 1 x (18 ... 1)[1] | 2 x (10 ... 1/0)[1] 1 x (10 ... 2/0)[1] |
| • Ribbon cable conductors (Number x Width x Thickness) | mm | -- | | | | 2 x (6 x 9 x 0.8) |
| **Connection type** | | **Spring-loaded terminals** | | | | |
| **Operating devices** | mm | 3.0 x 0.5 and 3.5 x 0.5 | | | | |
| **Conductor cross-sections (min./max.),** 1 or 2 conductors can be connected | | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 4) | 2 x (1 ... 10) | -- | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) | 2 x (1 ... 6) | -- | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 2.5) | 2 x (1 ... 6) | -- | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 12) | 2 x (18 ... 8) | -- | | |
| Max. external diameter of the conductor insulation | mm | 3.6 | 3.6 | -- | | |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

## Conductor cross-sections for auxiliary and control circuits

| Type | | 3RA2110 3RA2210 | 3RA2120 3RA2220 | 3RA2130 3RA2150 | For self-assembly |
|---|---|---|---|---|---|
| Size | | S00 | S0 | S2 | S3 |
| **Connection type** | | **Screw terminals** | | | |
| **Terminal screw** | | M3, Pozidriv size 2 | | | |
| **Operating devices** | mm | ⌀ 5 ... 6 | | | |
| **Prescribed tightening torque** | Nm | 0.8 ... 1.2 | | | |
| **Conductor cross-sections (min./max.),** 1 or 2 conductors can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5)[1], 2 x (0.75 ... 2.5)[1] | | | |
| • AWG cables, solid or stranded | AWG | 2 x (18 ... 14)[1], 2 x (20 ... 16)[1], 2 x 12 for contactor S00 only | | | |
| **Connection type** | | **Spring-loaded terminals** | | | |
| **Operating devices** | mm | 3.0 x 0.5 and 3.5 x 0.5 | | | |
| **Conductor cross-sections (min./max.),** 1 or 2 conductors can be connected | | | | | |
| • Solid or stranded | $mm^2$ | 2 x (0.5 ... 2.5) | | | |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.5 ... 2.5) | | | |
| • Finely stranded with end sleeve (DIN 46228) | $mm^2$ | 2 x (0.5 ... 1.5) | | | |
| • AWG cables, solid or stranded | AWG | 2 x (20 ... 14) | | | |
| Max. external diameter of the conductor insulation | mm | 3.6 | | | |

[1] If two different conductor cross-sections are connected to one clamping point, both cross-sections must be in the range specified.

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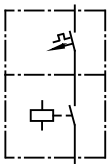
## Selection and ordering data

3RA2110

3RA2120

3RA2150

**Direct-on-line starting**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0, S2 and S3***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches:
  Contactor size S00: 1 NO,
  Contactor sizes S0, S2 and S3: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | **Comprising the following single devices** | | | **Fuseless load feeder** | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + Contactor | + Link module | **Screw terminals** | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | **3RV20** | **3RT20** | **3RA** | | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA10 | 15-1AP01 | 1921-1DA00 | **3RA2110-0BA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA10 | | | **3RA2110-0CA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA10 | | | **3RA2110-0DA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA10 | | | **3RA2110-0EA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA10 | | | **3RA2110-0FA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA10 | | | **3RA2110-0GA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA10 | | | **3RA2110-0HA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA10 | | | **3RA2110-0JA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA10 | | | **3RA2110-0KA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA10 | | | **3RA2110-1AA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA10 | | | **3RA2110-1BA15-1AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA10 | | | **3RA2110-1CA15-1AP0** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA10 | | | **3RA2110-1DA15-1AP0** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA10 | | | **3RA2110-1EA15-1AP0** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 24-1AP00 | 2921-1AA00 | **3RA2120-1FA24-0AP0** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | | **3RA2120-1GA24-0AP0** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2120-1HA24-0AP0** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | | | **3RA2120-1JA24-0AP0** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | | | **3RA2120-1KA24-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA10 | 26-1AP00 | | **3RA2120-4AA26-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA10 | 27-1AP00 | | **3RA2120-4BA27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA10 | | | **3RA2120-4CA27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA10 | | | **3RA2120-4DA27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA10 | | | **3RA2120-4NA27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 29[4)] | 27 ... 32 | 21-4EA10 | | | **3RA2120-4EA27-0AP0** | | 1 | 1 unit | 41D |
| **S2** | 15 | 29 | 22 ... 32 | 32-4EA10 | 35-1AP00 | 2931-1AA00 | **3RA2150-4EA35-0AP0** | | 1 | 1 unit | 41D |
| | 18.5 | 35 | 28 ... 36 | 32-4PA10 | | | **3RA2150-4PA35-0AP0** | | 1 | 1 unit | 41D |
| | 18.5 | 35 | 32 ... 40 | 32-4UA10 | | | **3RA2150-4UA35-0AP0** | | 1 | 1 unit | 41D |
| | 22 | 41 | 35 ... 45 | 32-4VA10 | 36-1AP00 | | **3RA2150-4VA36-0AP0** | | 1 | 1 unit | 41D |
| | 22 | 41 | 42 ... 50 | 32-4WA10 | | | **3RA2150-4WA36-0AP0** | | 1 | 1 unit | 41D |
| | 30 | 55 | 49 ... 59 | 32-4XA10 | 37-1AP00 | | **3RA2150-4XA37-0AP0** | | 1 | 1 unit | 41D |
| | 30 | 55 | 54 ... 65 | 32-4JA10 | | | **3RA2150-4JA37-0AP0** | | 1 | 1 unit | 41D |
| | 37[5)] | 66 | 62 ... 75 | 32-4KA10 | 38-1AP00 | | **3RA2150-4KA38-0AP0** | | 1 | 1 unit | 41D |
| **S3** | Size S3 available on request | | | | | | Size S3 is only available for self-assembly | | | | |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.
5) Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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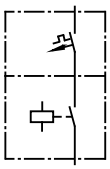
3RA2110

**Direct-on-line starting**



***Rated control supply voltage 50/60 Hz 230 V AC for S00***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches: Contactor size S00: 1 NO

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + Contactor | + Link module | Screw terminals | | | |
| | | | | | | | Article No. | Basic price per PU | | |
| | kW | A | A | | | | | | | |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | **3RV20** | **3RT20** | **3RA** | | | | |
| **S00** | Load feeders for lower outputs, see table for type of coordination "2" on the previous page. | | | | | | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 15-1AP01 | 1921-1DA00 | **3RA2110-1FA15-1AP0** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | | **3RA2110-1GA15-1AP0** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2110-1HA15-1AP0** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | 16-1AP01 | | **3RA2110-1JA16-1AP0** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | 17-1AP01 | | **3RA2110-1KA17-1AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA10 | 18-1AP01 | | **3RA2110-4AA18-1AP0** | 1 | 1 unit | 41D |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.

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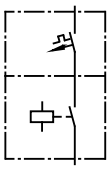
## 3RA21 direct-on-line starters > for DIN-rail mounting or screw fixing *IE3/IE4 ready* AC-3e

3RA2130

**Direct-on-line starting**



***Rated control supply voltage***
***50 Hz 230 V AC for S2 and S3***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches: Contactor sizes S2 and S3: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | **Comprising the following single devices** | | | **Fuseless load feeder** | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + Contactor | + Link module | **Screw terminals** | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 100 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | **3RV20** | **3RT20** | **3RA** | | | | | |
| **S2** | 15 | 29 | 22 ... 32 | 31-4EA10 | 35-1AP00 | 2931-1AA00 | **3RA2130-4EA35-0AP0** | | 1 | 1 unit | 41D |
| | 18.5 | 35 | 28 ... 36 | 31-4PA10 | | | **3RA2130-4PA35-0AP0** | | 1 | 1 unit | 41D |
| | 18.5 | 35 | 32 ... 40 | 31-4UA10 | | | **3RA2130-4UA35-0AP0** | | 1 | 1 unit | 41D |
| | 22 | 41 | 35 ... 45 | 31-4VA10 | 36-1AP00 | | **3RA2130-4VA36-0AP0** | | 1 | 1 unit | 41D |
| | 22 | 41 | 42 ... 50 | 31-4WA10 | | | **3RA2130-4WA36-0AP0** | | 1 | 1 unit | 41D |
| | 30 | 55 | 49 ... 59 | 31-4XA10 | 37-1AP00 | | **3RA2130-4XA37-0AP0** | | 1 | 1 unit | 41D |
| | 30 | 55 | 54 ... 65 | 31-4JA10 | | | **3RA2130-4JA37-0AP0** | | 1 | 1 unit | 41D |
| | 37[4)] | 66 | 62 ... 73 | 31-4KA10 | 38-1AP00 | | **3RA2130-4KA38-0AP0** | | 1 | 1 unit | 41D |
| **S3** | Size S3 available on request | | | | | | Size S3 is only available for self-assembly | | | | |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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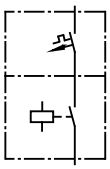
3RA2110

3RA2120

**Direct-on-line starting**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0***
***With spring-loaded terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches:
  Contactor size S00: 1 NO,
  Contactor size S0: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + Contactor | + Link module | Spring-loaded terminals | | | |
| | kW | A | A | | | | Article No. / Basic price per PU | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | | | | | | | |
| | | | | **3RV20** | **3RT20** | **3RA29** | ToC 2 | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA20 | 15-2AP01 | 11-2AA00 | **3RA2110-0BE15-1AP0** | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA20 | | | **3RA2110-0CE15-1AP0** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA20 | | | **3RA2110-0DE15-1AP0** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA20 | | | **3RA2110-0EE15-1AP0** | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA20 | | | **3RA2110-0FE15-1AP0** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA20 | | | **3RA2110-0GE15-1AP0** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA20 | | | **3RA2110-0HE15-1AP0** | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA20 | | | **3RA2110-0JE15-1AP0** | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA20 | | | **3RA2110-0KE15-1AP0** | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA20 | | | **3RA2110-1AE15-1AP0** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA20 | | | **3RA2110-1BE15-1AP0** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA20 | | | **3RA2110-1CE15-1AP0** | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA20 | | | **3RA2110-1DE15-1AP0** | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA20 | | | **3RA2110-1EE15-1AP0** | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 21-1FA20 | 24-2AP00 | 21-2AA00 | **3RA2120-1FE24-0AP0** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 21-1GA20 | | | **3RA2120-1GE24-0AP0** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 21-1HA20 | | | **3RA2120-1HE24-0AP0** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 21-1JA20 | | | **3RA2120-1JE24-0AP0** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 21-1KA20 | | | **3RA2120-1KE24-0AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA20 | 26-2AP00 | | **3RA2120-4AE26-0AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA20 | 27-2AP00 | | **3RA2120-4BE27-0AP0** | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA20 | | | **3RA2120-4CE27-0AP0** | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA20 | | | **3RA2120-4DE27-0AP0** | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA20 | | | **3RA2120-4NE27-0AP0** | 1 | 1 unit | 41D |
| | 15 | 29[4)] | 27 ... 32 | 21-4EA20 | | | **3RA2120-4EE27-0AP0** | 1 | 1 unit | 41D |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA20 | 15-2AP01 | 11-2AA00 | **3RA2110-1FE15-1AP0** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA20 | | | **3RA2110-1GE15-1AP0** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA20 | | | **3RA2110-1HE15-1AP0** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA20 | 16-2AP01 | | **3RA2110-1JE16-1AP0** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA20 | 17-2AP01 | | **3RA2110-1KE17-1AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA20 | 18-2AP01 | | **3RA2110-4AE18-1AP0** | 1 | 1 unit | 41D |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.

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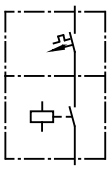
3RA2110

3RA2120

3RA2150

**Direct-on-line starting**



***Rated control supply voltage 24 V DC***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches:
  Contactor size S00: 1 NO,
  Contactor sizes S0, S2 and S3: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + Contactor | + Link module | Screw terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | | | | | | | | |
| | | | | 3RV20 | 3RT20 | 3RA | ToC 2 | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA10 | 15-1BB41 | 1921-1DA00 | **3RA2110-0BA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA10 | | | **3RA2110-0CA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA10 | | | **3RA2110-0DA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA10 | | | **3RA2110-0EA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA10 | | | **3RA2110-0FA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA10 | | | **3RA2110-0GA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA10 | | | **3RA2110-0HA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA10 | | | **3RA2110-0JA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA10 | | | **3RA2110-0KA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA10 | | | **3RA2110-1AA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA10 | | | **3RA2110-1BA15-1BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA10 | | | **3RA2110-1CA15-1BB4** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA10 | | | **3RA2110-1DA15-1BB4** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA10 | | | **3RA2110-1EA15-1BB4** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 24-1BB40 | 2921-1BA00 | **3RA2120-1FA24-0BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | | **3RA2120-1GA24-0BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2120-1HA24-0BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | | | **3RA2120-1JA24-0BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | | | **3RA2120-1KA24-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA10 | 26-1BB40 | | **3RA2120-4AA26-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA10 | 27-1BB40 | | **3RA2120-4BA27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA10 | | | **3RA2120-4CA27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA10 | | | **3RA2120-4DA27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA10 | | | **3RA2120-4NA27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 29[4)] | 27 ... 32 | 21-4EA10 | | | **3RA2120-4EA27-0BB4** | | 1 | 1 unit | 41D |
| **S2** | 15 | 29 | 22 ... 32 | 32-4EA10 | 35-1NB30 | 2931-1AA00 | **3RA2150-4EA35-0NB3** | | 1 | 1 unit | 41D |
| | 18.5 | 35 | 28 ... 36 | 32-4PA10 | | | **3RA2150-4PA35-0NB3** | | 1 | 1 unit | 41D |
| | 18.5 | 35 | 32 ... 40 | 32-4UA10 | | | **3RA2150-4UA35-0NB3** | | 1 | 1 unit | 41D |
| | 22 | 41 | 35 ... 45 | 32-4VA10 | 36-1NB30 | | **3RA2150-4VA36-0NB3** | | 1 | 1 unit | 41D |
| | 22 | 41 | 42 ... 50 | 32-4WA10 | | | **3RA2150-4WA36-0NB3** | | 1 | 1 unit | 41D |
| | 30 | 55 | 49 ... 59 | 32-4XA10 | 37-1NB30 | | **3RA2150-4XA37-0NB3** | | 1 | 1 unit | 41D |
| | 30 | 55 | 54 ... 65 | 32-4JA10 | | | **3RA2150-4JA37-0NB3** | | 1 | 1 unit | 41D |
| | 37[5)] | 66 | 62 ... 73 | 32-4KA10 | 38-1NB30 | | **3RA2150-4KA38-0NB3** | | 1 | 1 unit | 41D |
| **S3** | Size S3 available on request | | | | | | Size S3 is only available for self-assembly | | | | |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.
5) Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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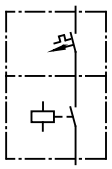
3RA2110

**Direct-on-line starting**



***Rated control supply voltage 24 V DC***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches: Contactor size S00: 1 NO

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + Contactor | + Link module | Screw terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | **3RV20** | **3RT20** | **3RA** | | | | | |
| **S00** | Load feeders for lower outputs, see table for type of coordination "2" on the previous page. | | | | | | | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 15-1BB41 | 1921-1DA00 | **3RA2110-1FA15-1BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | | **3RA2110-1GA15-1BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2110-1HA15-1BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | 16-1BB41 | | **3RA2110-1JA16-1BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | 17-1BB41 | | **3RA2110-1KA17-1BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA10 | 18-1BB41 | | **3RA2110-4AA18-1BB4** | | 1 | 1 unit | 41D |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.

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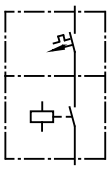
## 3RA21 direct-on-line starters > for DIN-rail mounting or screw fixing *IE3/IE4 ready* AC-3e

3RA2130

**Direct-on-line starting**



***Rated control supply voltage 24 V DC***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches: Contactor sizes S2 and S3: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + Contactor | + Link module | Screw terminals | | | |
| | | | | | | | Article No. | | | |
| | kW | A | A | | | | | Basic price per PU | | |
| **Type of coordination "2" at $I_q$ = 100 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | **3RV20** | **3RT20** | **3RA** | ToC 2 | | | |
| **S2** | 15 | 29 | 22 ... 32 | 31-4EA10 | 35-1NB30 | 2931-1AA00 | **3RA2130-4EA35-0NB3** | 1 | 1 unit | 41D |
| | 18.5 | 35 | 28 ... 36 | 31-4PA10 | | | **3RA2130-4PA35-0NB3** | 1 | 1 unit | 41D |
| | 18.5 | 35 | 32 ... 40 | 31-4UA10 | | | **3RA2130-4UA35-0NB3** | 1 | 1 unit | 41D |
| | 22 | 41 | 35 ... 45 | 31-4VA10 | 36-1NB30 | | **3RA2130-4VA36-0NB3** | 1 | 1 unit | 41D |
| | 22 | 41 | 42 ... 50 | 31-4WA10 | | | **3RA2130-4WA36-0NB3** | 1 | 1 unit | 41D |
| | 30 | 55 | 49 ... 59 | 31-4XA10 | 37-1NB30 | | **3RA2130-4XA37-0NB3** | 1 | 1 unit | 41D |
| | 30 | 55 | 54 ... 65 | 31-4JA10 | | | **3RA2130-4JA37-0NB3** | 1 | 1 unit | 41D |
| | 37[4)] | 66 | 62 ... 73 | 31-4KA10 | 38-1NB30 | | **3RA2130-4KA38-0NB3** | 1 | 1 unit | 41D |
| **S3** | Size S3 available on request | | | | | | Size S3 is only available for self-assembly | | | |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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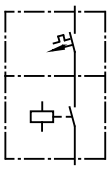
3RA2110

3RA2120

**Direct-on-line starting**



***Rated control supply voltage 24 V DC***
***With spring-loaded terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches:
  Contactor size S00: 1 NO,
  Contactor size S0: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + Contactor | + Link module | Spring-loaded terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | | | | | | | | |
| | | | | **3RV20** | **3RT20** | **3RA29** | ToC 2 | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA20 | 15-2BB41 | 11-2AA00 | **3RA2110-0BE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA20 | | | **3RA2110-0CE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA20 | | | **3RA2110-0DE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA20 | | | **3RA2110-0EE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA20 | | | **3RA2110-0FE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA20 | | | **3RA2110-0GE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA20 | | | **3RA2110-0HE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA20 | | | **3RA2110-0JE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA20 | | | **3RA2110-0KE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA20 | | | **3RA2110-1AE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA20 | | | **3RA2110-1BE15-1BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA20 | | | **3RA2110-1CE15-1BB4** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA20 | | | **3RA2110-1DE15-1BB4** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA20 | | | **3RA2110-1EE15-1BB4** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 21-1FA20 | 24-2BB40 | 21-2AA00 | **3RA2120-1FE24-0BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 21-1GA20 | | | **3RA2120-1GE24-0BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 21-1HA20 | | | **3RA2120-1HE24-0BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 21-1JA20 | | | **3RA2120-1JE24-0BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 21-1KA20 | | | **3RA2120-1KE24-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA20 | 26-2BB40 | | **3RA2120-4AE26-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA20 | 27-2BB40 | | **3RA2120-4BE27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA20 | | | **3RA2120-4CE27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA20 | | | **3RA2120-4DE27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA20 | | | **3RA2120-4NE27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 29[4)] | 27 ... 32 | 21-4EA20 | | | **3RA2120-4EE27-0BB4** | | 1 | 1 unit | 41D |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA20 | 15-2BB41 | 11-2AA00 | **3RA2110-1FE15-1BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA20 | | | **3RA2110-1GE15-1BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA20 | | | **3RA2110-1HE15-1BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA20 | 16-2BB41 | | **3RA2110-1JE16-1BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA20 | 17-2BB41 | | **3RA2110-1KE17-1BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA20 | 18-2BB40 | | **3RA2110-4AE18-1BB4** | | 1 | 1 unit | 41D |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.

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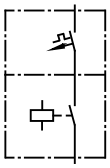
## Selection and ordering data

3RA2110

3RA2120

**Direct-on-line starting**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0 and S2***
***With screw terminals***

- With busbar adapter
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches:
  Contactor size S00: 1 NO,
  Contactor sizes S0 and S2: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[2] | | Adjustable current response value of the inverse-time delayed overload release | **Comprising the following single devices** | | | **Fuseless load feeder** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + Contactor | + Link module + Busbar adapter | **Screw terminals** | | | |
| | | | | | | | Article No. | Basic price per PU | | |
| | kW | A | A | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | | | | | | | |
| | | | | **3RV20** | **3RT20** | **3RA** | ToC 2 | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA10 | 15-1AP01 | 1921-1DA00 | **3RA2110-0BD15-1AP0** | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA10 | | + 8US1251- | **3RA2110-0CD15-1AP0** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA10 | | 5DS10 | **3RA2110-0DD15-1AP0** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA10 | | | **3RA2110-0ED15-1AP0** | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA10 | | | **3RA2110-0FD15-1AP0** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA10 | | | **3RA2110-0GD15-1AP0** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA10 | | | **3RA2110-0HD15-1AP0** | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA10 | | | **3RA2110-0JD15-1AP0** | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA10 | | | **3RA2110-0KD15-1AP0** | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA10 | | | **3RA2110-1AD15-1AP0** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA10 | | | **3RA2110-1BD15-1AP0** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA10 | | | **3RA2110-1CD15-1AP0** | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA10 | | | **3RA2110-1DD15-1AP0** | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA10 | | | **3RA2110-1ED15-1AP0** | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 24-1AP00 | 2921-1AA00 | **3RA2120-1FD24-0AP0** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 8US1251- | **3RA2120-1GD24-0AP0** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | 5DT10 | **3RA2120-1HD24-0AP0** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | | | **3RA2120-1JD24-0AP0** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | | | **3RA2120-1KD24-0AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA10 | 26-1AP00 | 2921-1AA00 | **3RA2120-4AD26-0AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA10 | 27-1AP00 | + 8US1251- | **3RA2120-4BD27-0AP0** | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA10 | | 5NT10 | **3RA2120-4CD27-0AP0** | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA10 | | | **3RA2120-4DD27-0AP0** | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA10 | | | **3RA2120-4ND27-0AP0** | 1 | 1 unit | 41D |
| | 15 | 29[3] | 27 ... 32 | 21-4EA10 | | | **3RA2120-4ED27-0AP0** | 1 | 1 unit | 41D |
| **S2** | 15 | 29 | 22 ... 32 | 32-4EA10 | 35-1AP00 | 2931-1AA00 | Size S2 is only available for self-assembly. | | | |
| | 18.5 | 35 | 28 ... 36 | 32-4PA10 | | + 8US1261- | | | | |
| | 18.5 | 35 | 32 ... 40 | 32-4UA10 | | 6MT10 | | | | |
| | 22 | 41 | 35 ... 45 | 32-4VA10 | 36-1AP00 | | | | | |
| | 22 | 41 | 42 ... 50 | 32-4WA10 | | | | | | |
| | 30 | 55 | 49 ... 59 | 32-4XA10 | 37-1AP00 | | | | | |
| | 30 | 55 | 54 ... 65 | 32-4JA10 | | | | | | |
| | 37[4] | 66 | 62 ... 73 | 32-4KA10 | 38-1AP00 | | | | | |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 15-1AP01 | 1921-1DA00 | **3RA2110-1FD15-1AP0** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 8US1251- | **3RA2110-1GD15-1AP0** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | 5DS10 | **3RA2110-1HD15-1AP0** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | 16-1AP01 | | **3RA2110-1JD16-1AP0** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | 17-1AP01 | | **3RA2110-1KD17-1AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA10 | 18-1AP01 | | **3RA2110-4AD18-1AP0** | 1 | 1 unit | 41D |

[1] Auxiliary switches, see "Accessories", page 8/45.

[2] The actual starting and rated data of the motor to be protected must be considered when selecting the units.

[3] Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.

[4] Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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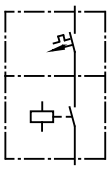
3RA2110

3RA2120

**Direct-on-line starting**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0***
***With spring-loaded terminals***

- With busbar adapter
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches:
  Contactor size S00: 1 NO,
  Contactor size S0: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[2] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + Contactor | + Link module + Busbar adapter | Spring-loaded terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | | | | | | | | |
| | | | | **3RV20** | **3RT20** | **3RA29** | ToC 2 | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA20 | 15-2AP01 | 11-2AA00 | **3RA2110-0BH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA20 | | + 8US1251- | **3RA2110-0CH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA20 | | 5DT11 | **3RA2110-0DH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA20 | | | **3RA2110-0EH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA20 | | | **3RA2110-0FH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA20 | | | **3RA2110-0GH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA20 | | | **3RA2110-0HH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA20 | | | **3RA2110-0JH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA20 | | | **3RA2110-0KH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA20 | | | **3RA2110-1AH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA20 | | | **3RA2110-1BH15-1AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA20 | | | **3RA2110-1CH15-1AP0** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA20 | | | **3RA2110-1DH15-1AP0** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA20 | | | **3RA2110-1EH15-1AP0** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 21-1FA20 | 24-2AP00 | 21-2AA00 | **3RA2120-1FH24-0AP0** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 21-1GA20 | | + 8US1251- | **3RA2120-1GH24-0AP0** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 21-1HA20 | | 5NT11[3] | **3RA2120-1HH24-0AP0** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 21-1JA20 | | | **3RA2120-1JH24-0AP0** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 21-1KA20 | | | **3RA2120-1KH24-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA20 | 26-2AP00 | | **3RA2120-4AH26-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA20 | 27-2AP00 | | **3RA2120-4BH27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA20 | | | **3RA2120-4CH27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA20 | | | **3RA2120-4DH27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA20 | | | **3RA2120-4NH27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 29[4] | 27 ... 32 | 21-4EA20 | | | **3RA2120-4EH27-0AP0** | | 1 | 1 unit | 41D |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA20 | 15-2AP01 | 11-2AA00 | **3RA2110-1FH15-1AP0** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA20 | | + 8US1251- | **3RA2110-1GH15-1AP0** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA20 | | 5DT11 | **3RA2110-1HH15-1AP0** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA20 | 16-2AP01 | | **3RA2110-1JH16-1AP0** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA20 | 17-2AP01 | | **3RA2110-1KH17-1AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA20 | 18-2AP01 | | **3RA2110-4AH18-1AP0** | | 1 | 1 unit | 41D |

1) Auxiliary switches, see "Accessories", page 8/45.

2) The actual starting and rated data of the motor to be protected must be considered when selecting the units.

3) A 3RA2911-1CA00 spacer for height compensation on AC contactors size S0 with spring-loaded terminals is included in the scope of supply.

4) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.

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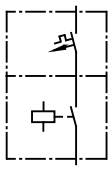
## 3RA21 direct-on-line starters > for 60 mm busbars IE3/IE4 ready AC-3e

3RA2110

3RA2120

**Direct-on-line starting**



***Rated control supply voltage 24 V DC***
***With screw terminals***

- With busbar adapter
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches:
  Contactor size S00: 1 NO,
  Contactor sizes S0 and S2: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[2] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + Contactor | + Link module + Busbar adapter | Screw terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | | | | | | | | |
| | | | | **3RV20** | **3RT20** | **3RA** | ToC 2 | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA10 | 15-1BB41 | 1921-1DA00 + 8US1251-5DS10 | **3RA2110-0BD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA10 | | | **3RA2110-0CD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA10 | | | **3RA2110-0DD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA10 | | | **3RA2110-0ED15-1BB4** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA10 | | | **3RA2110-0FD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA10 | | | **3RA2110-0GD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA10 | | | **3RA2110-0HD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA10 | | | **3RA2110-0JD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA10 | | | **3RA2110-0KD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA10 | | | **3RA2110-1AD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA10 | | | **3RA2110-1BD15-1BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA10 | | | **3RA2110-1CD15-1BB4** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA10 | | | **3RA2110-1DD15-1BB4** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA10 | | | **3RA2110-1ED15-1BB4** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 24-1BB40 | 2921-1BA00 + 8US1251-5DT10 | **3RA2120-1FD24-0BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | | **3RA2120-1GD24-0BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2120-1HD24-0BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | | | **3RA2120-1JD24-0BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | | | **3RA2120-1KD24-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA10 | 26-1BB40 | 2921-1BA00 + 8US1251-5NT10 | **3RA2120-4AD26-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA10 | 27-1BB40 | | **3RA2120-4BD27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA10 | | | **3RA2120-4CD27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA10 | | | **3RA2120-4DD27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA10 | | | **3RA2120-4ND27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 29[3] | 27 ... 32 | 21-4EA10 | | | **3RA2120-4ED27-0BB4** | | 1 | 1 unit | 41D |
| **S2** | 15 | 29 | 22 ... 32 | 32-4EA10 | 35-1NB30 | 2931-1AA00 + 8US1261-6MT10 | Size S2 is only available for self-assembly. | | | | |
| | 18.5 | 35 | 28 ... 36 | 32-4PA10 | | | | | | | |
| | 18.5 | 35 | 32 ... 40 | 32-4UA10 | | | | | | | |
| | 22 | 41 | 35 ... 45 | 32-4VA10 | 36-1NB30 | | | | | | |
| | 22 | 41 | 42 ... 50 | 32-4WA10 | | | | | | | |
| | 30 | 55 | 49 ... 59 | 32-4XA10 | 37-1NB30 | | | | | | |
| | 30 | 55 | 54 ... 65 | 32-4JA10 | | | | | | | |
| | 37[4] | 66 | 62 ... 73 | 32-4KA10 | 38-1NB30 | | | | | | |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 15-1BB41 | 1921-1DA00 + 8US1251-5DS10 | **3RA2110-1FD15-1BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | | **3RA2110-1GD15-1BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2110-1HD15-1BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | 16-1BB41 | | **3RA2110-1JD16-1BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | 17-1BB41 | | **3RA2110-1KD17-1BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA10 | 18-1BB41 | | **3RA2110-4AD18-1BB4** | | 1 | 1 unit | 41D |

1) Auxiliary switches, see "Accessories", page 8/45.

2) The actual starting and rated data of the motor to be protected must be considered when selecting the units.

3) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.

4) Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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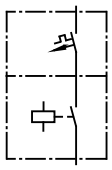
**AC-3e** ***IE3/IE4* ready** **3RA21 direct-on-line starters > for 60 mm busbars**

3RA2110

3RA2120

**Direct-on-line starting**



***Rated control supply voltage 24 V DC***
***With spring-loaded terminals***

- With busbar adapter
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- Integrated auxiliary switches:
  Contactor size S00: 1 NO,
  Contactor size S0: 1 NO + 1 NC

| Size | Standard three-phase motor 4-pole at 400 V AC[2] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + Contactor | + Link module + Busbar adapter | **Spring-loaded terminals** | | | |
| | | | | | | | Article No. / Basic price per PU | | | |
| | kW | A | A | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | | | | | | | |
| | | | | **3RV20** | **3RT20** | **3RA29** | ToC 2 | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA20 | 15-2BB41 | 11-2AA00 | **3RA2110-0BH15-1BB4** | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA20 | | + 8US1251- | **3RA2110-0CH15-1BB4** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA20 | | 5DT11 | **3RA2110-0DH15-1BB4** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA20 | | | **3RA2110-0EH15-1BB4** | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA20 | | | **3RA2110-0FH15-1BB4** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA20 | | | **3RA2110-0GH15-1BB4** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA20 | | | **3RA2110-0HH15-1BB4** | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA20 | | | **3RA2110-0JH15-1BB4** | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA20 | | | **3RA2110-0KH15-1BB4** | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA20 | | | **3RA2110-1AH15-1BB4** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA20 | | | **3RA2110-1BH15-1BB4** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA20 | | | **3RA2110-1CH15-1BB4** | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA20 | | | **3RA2110-1DH15-1BB4** | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA20 | | | **3RA2110-1EH15-1BB4** | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 21-1FA20 | 24-2BB40 | 21-2AA00 | **3RA2120-1FH24-0BB4** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 21-1GA20 | | + 8US1251- | **3RA2120-1GH24-0BB4** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 21-1HA20 | | 5NT11 | **3RA2120-1HH24-0BB4** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 21-1JA20 | | | **3RA2120-1JH24-0BB4** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 21-1KA20 | | | **3RA2120-1KH24-0BB4** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA20 | 26-2BB40 | | **3RA2120-4AH26-0BB4** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA20 | 27-2BB40 | | **3RA2120-4BH27-0BB4** | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA20 | | | **3RA2120-4CH27-0BB4** | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA20 | | | **3RA2120-4DH27-0BB4** | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA20 | | | **3RA2120-4NH27-0BB4** | 1 | 1 unit | 41D |
| | 15 | 29[3] | 27 ... 32 | 21-4EA20 | | | **3RA2120-4EH27-0BB4** | 1 | 1 unit | 41D |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA20 | 15-2BB41 | 11-2AA00 | **3RA2110-1FH15-1BB4** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA20 | | + 8US1251- | **3RA2110-1GH15-1BB4** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA20 | | 5DT11 | **3RA2110-1HH15-1BB4** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA20 | 16-2BB41 | | **3RA2110-1JH16-1BB4** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA20 | 17-2BB41 | | **3RA2110-1KH17-1BB4** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA20 | 18-2BB40 | | **3RA2110-4AH18-1BB4** | 1 | 1 unit | 41D |

[1] Auxiliary switches, see "Accessories", page 8/45.
[2] The actual starting and rated data of the motor to be protected must be considered when selecting the units.
[3] Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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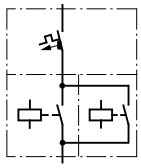
## Selection and ordering data

3RA2210

3RA2220

**Reversing operation**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0, S2 and S3***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- Without DIN-rail adapter for size S00
- With 2 DIN-rail adapters for size S0 for mechanical reinforcement (included in the scope of supply)
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- With contactor sizes S0, S2 and S3, an integrated NO contact is still available for free use.

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + RH mounting kit[4)]/wiring kit | Screw terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | 3RV20 | 3RT20 | 3RA | | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA10 | 15-1AP02 | 1921-1DA00 | **3RA2210-0BA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA10 | | + 2913-2AA1 | **3RA2210-0CA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA10 | | | **3RA2210-0DA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA10 | | | **3RA2210-0EA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA10 | | | **3RA2210-0FA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA10 | | | **3RA2210-0GA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA10 | | | **3RA2210-0HA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA10 | | | **3RA2210-0JA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA10 | | | **3RA2210-0KA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA10 | | | **3RA2210-1AA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA10 | | | **3RA2210-1BA15-2AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA10 | | | **3RA2210-1CA15-2AP0** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA10 | | | **3RA2210-1DA15-2AP0** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA10 | | | **3RA2210-1EA15-2AP0** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 24-1AP00 | 2921-1AA00 | **3RA2220-1FB24-0AP0** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 2923-1BB1 | **3RA2220-1GB24-0AP0** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2220-1HB24-0AP0** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | | | **3RA2220-1JB24-0AP0** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | | | **3RA2220-1KB24-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA10 | 26-1AP00 | | **3RA2220-4AB26-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA10 | 27-1AP00 | | **3RA2220-4BB27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA10 | | | **3RA2220-4CB27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA10 | | | **3RA2220-4DB27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA10 | | | **3RA2220-4NB27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 29[5)] | 27 ... 32 | 21-4EA10 | | | **3RA2220-4EB27-0AP0** | | 1 | 1 unit | 41D |
| **S2** | 15 | 29 | 22 ... 32 | 32-4EA10 | 35-1AP00 | 2931-1AA00 | Size S2 is only available for self-assembly. | | | | |
| | 18.5 | 35 | 28 ... 36 | 32-4PA10 | | + 2933-1BB1 | | | | | |
| | 18.5 | 35 | 32 ... 40 | 32-4UA10 | | | | | | | |
| | 22 | 41 | 35 ... 45 | 32-4VA10 | 36-1AP00 | | | | | | |
| | 22 | 41 | 42 ... 50 | 32-4WA10 | | | | | | | |
| | 30 | 55 | 49 ... 59 | 32-4XA10 | 37-1AP00 | | | | | | |
| | 30 | 55 | 54 ... 65 | 32-4JA10 | | | | | | | |
| | 37[6)] | 66 | 62 ... 73 | 32-4KA10 | 38-1AP00 | | | | | | |
| **S3** | Size S3 available on request | | | | | | Size S3 is only available for self-assembly | | | | |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) RH = Mounting kit for reversing operation and DIN-rail mounting in sizes S0 and S2.
5) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.
6) Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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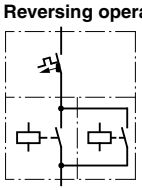
**AC-3e** ***IE3/IE4* ready** **3RA22 reversing starters > for DIN-rail mounting or screw fixing**

3RA2210

**Reversing operation**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- Without DIN-rail adapter for size S00
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | **Comprising the following single devices** | | | **Fuseless load feeder** | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output *P* | Motor current *I* (guide value) | | Motor starter protector | + 2 contactors | + Link module + RH mounting kit[4)]/wiring kit | **Screw terminals** | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | **3RV20** | **3RT20** | **3RA** | | | | | |
| **S00** | Load feeders for lower outputs, see table for type of coordination "2" on the previous page. | | | | | | | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 15-1AP02 | 1921-1DA00 | **3RA2210-1FA15-2AP0** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 2913-2AA1 | **3RA2210-1GA15-2AP0** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2210-1HA15-2AP0** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | 16-1AP02 | | **3RA2210-1JA16-2AP0** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | 17-1AP02 | | **3RA2210-1KA17-2AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA10 | 18-1AP02 | | **3RA2210-4AA18-2AP0** | | 1 | 1 unit | 41D |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) RH = Mounting kit for reversing operation and DIN-rail mounting in sizes S0 and S2.

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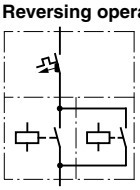
## 3RA22 reversing starters > for DIN-rail mounting or screw fixing IE3/IE4 ready AC-3e

3RA2210

3RA2220

**Reversing operation**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0***
***With spring-loaded terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- Without DIN-rail adapter for size S00
- With two DIN-rail adapters for size S0 for mechanical reinforcement (included in the scope of supply)
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- With the contactor S0, an integrated NO contact is still available for free use.

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + RH mounting kit[4)]/wiring kit | Spring-loaded terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | 3RV20 | 3RT20 | 3RA29 | ToC 2 | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA20 | 15-2AP02 | 11-2AA00 | **3RA2210-0BE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA20 | | + 2913-2AA2 | **3RA2210-0CE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA20 | | | **3RA2210-0DE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA20 | | | **3RA2210-0EE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA20 | | | **3RA2210-0FE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA20 | | | **3RA2210-0GE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA20 | | | **3RA2210-0HE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA20 | | | **3RA2210-0JE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA20 | | | **3RA2210-0KE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA20 | | | **3RA2210-1AE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA20 | | | **3RA2210-1BE15-2AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA20 | | | **3RA2210-1CE15-2AP0** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA20 | | | **3RA2210-1DE15-2AP0** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA20 | | | **3RA2210-1EE15-2AP0** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 21-1FA20 | 24-2AP00 | 21-2AA00 | **3RA2220-1FF24-0AP0** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 21-1GA20 | | + 2923-1BB2[5)] | **3RA2220-1GF24-0AP0** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 21-1HA20 | | | **3RA2220-1HF24-0AP0** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 21-1JA20 | | | **3RA2220-1JF24-0AP0** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 21-1KA20 | | | **3RA2220-1KF24-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA20 | 26-2AP00 | | **3RA2220-4AF26-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA20 | 27-2AP00 | | **3RA2220-4BF27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA20 | | | **3RA2220-4CF27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA20 | | | **3RA2220-4DF27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA20 | | | **3RA2220-4NF27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 29[6)] | 27 ... 32 | 21-4EA20 | | | **3RA2220-4EF27-0AP0** | | 1 | 1 unit | 41D |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA20 | 15-2AP02 | 11-2AA00 | **3RA2210-1FE15-2AP0** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA20 | | + 2913-2AA2 | **3RA2210-1GE15-2AP0** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA20 | | | **3RA2210-1HE15-2AP0** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA20 | 16-2AP02 | | **3RA2210-1JE16-2AP0** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA20 | 17-2AP02 | | **3RA2210-1KE17-2AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA20 | 18-2AP02 | | **3RA2210-4AE18-2AP0** | | 1 | 1 unit | 41D |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) RH = Mounting kit for reversing operation and DIN-rail mounting in size S0.
5) The RH mounting kit also includes the 3RA2911-1CA00 spacer for height compensation on AC contactors size S0 with spring-loaded terminals.
6) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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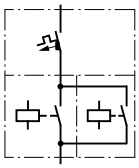
**AC-3e** ***IE3/IE4* ready** **3RA22 reversing starters > for DIN-rail mounting or screw fixing**

3RA2210

3RA2220

**Reversing operation**



***Rated control supply voltage 24 V DC***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- Without DIN-rail adapter for size S00
- With two DIN-rail adapters for size S0 for mechanical reinforcement (included in the scope of supply)
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- With contactor sizes S0, S2 and S3, an integrated NO contact is still available for free use.

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + RH mounting kit[4)]/wiring kit | Screw terminals | | | |
| | | | | | | | Article No. | | | |
| | kW | A | A | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | 3RV20 | 3RT20 | 3RA | ToC 2 | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA10 | 15-1BB42 | 1921-1DA00 | **3RA2210-0BA15-2BB4** | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA10 | | + 2913-2AA1 | **3RA2210-0CA15-2BB4** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA10 | | | **3RA2210-0DA15-2BB4** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA10 | | | **3RA2210-0EA15-2BB4** | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA10 | | | **3RA2210-0FA15-2BB4** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA10 | | | **3RA2210-0GA15-2BB4** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA10 | | | **3RA2210-0HA15-2BB4** | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA10 | | | **3RA2210-0JA15-2BB4** | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA10 | | | **3RA2210-0KA15-2BB4** | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA10 | | | **3RA2210-1AA15-2BB4** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA10 | | | **3RA2210-1BA15-2BB4** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA10 | | | **3RA2210-1CA15-2BB4** | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA10 | | | **3RA2210-1DA15-2BB4** | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA10 | | | **3RA2210-1EA15-2BB4** | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 24-1BB40 | 2921-1BA00 | **3RA2220-1FB24-0BB4** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 2923-1BB1 | **3RA2220-1GB24-0BB4** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2220-1HB24-0BB4** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | | | **3RA2220-1JB24-0BB4** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | | | **3RA2220-1KB24-0BB4** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA10 | 26-1BB40 | | **3RA2220-4AB26-0BB4** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA10 | 27-1BB40 | | **3RA2220-4BB27-0BB4** | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA10 | | | **3RA2220-4CB27-0BB4** | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA10 | | | **3RA2220-4DB27-0BB4** | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA10 | | | **3RA2220-4NB27-0BB4** | 1 | 1 unit | 41D |
| | 15 | 29[5)] | 27 ... 32 | 21-4EA10 | | | **3RA2220-4EB27-0BB4** | 1 | 1 unit | 41D |
| **S2** | 15 | 29 | 22 ... 32 | 32-4EA10 | 35-1NB30 | 2931-1AA00 | Size S2 is only available for self-assembly. | | | |
| | 18.5 | 35 | 28 ... 36 | 32-4PA10 | | + 2933-1BB1 | | | | |
| | 18.5 | 35 | 32 ... 40 | 32-4UA10 | | | | | | |
| | 22 | 41 | 35 ... 45 | 32-4VA10 | 36-1NB30 | | | | | |
| | 22 | 41 | 42 ... 50 | 32-4WA10 | | | | | | |
| | 30 | 55 | 49 ... 59 | 32-4XA10 | 37-1NB30 | | | | | |
| | 30 | 55 | 54 ... 65 | 32-4JA10 | | | | | | |
| | 37[6)] | 66 | 62 ... 73 | 32-4KA10 | 38-1NB30 | | | | | |
| **S3** | Size S3 available on request | | | | | | Size S3 is only available for self-assembly. | | | |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) RH = Mounting kit for reversing operation and DIN-rail mounting in sizes S0 and S2.
5) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.
6) Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.

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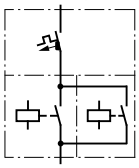
## 3RA22 reversing starters > for DIN-rail mounting or screw fixing *IE3/IE4* ready AC-3e

3RA2210

**Reversing operation**



***Rated control supply voltage 24 V DC***
***With screw terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- Without DIN-rail adapter for size S00
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + Wiring kit | Screw terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | **3RV20** | **3RT20** | **3RA** | | | | | |
| **S00** | Load feeders for lower outputs, see table for type of coordination "2" on the previous page. | | | | | | | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 15-1BB42 | 1921-1DA00 | **3RA2210-1FA15-2BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 2913-2AA1 | **3RA2210-1GA15-2BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2210-1HA15-2BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | 16-1BB42 | | **3RA2210-1JA16-2BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | 17-1BB42 | | **3RA2210-1KA17-2BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA10 | 18-1BB42 | | **3RA2210-4AA18-2BB4** | | 1 | 1 unit | 41D |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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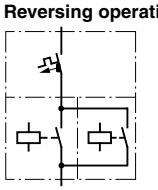
**AC-3e** ***IE3/IE4* ready** **3RA22 reversing starters > for DIN-rail mounting or screw fixing**

3RA2210

3RA2220

**Reversing operation**



***Rated control supply voltage 24 V DC***
***With spring-loaded terminals***

- Screw fixing with two push-in lugs per load feeder possible[1)]
- Without DIN-rail adapter for size S00
- With two DIN-rail adapters for size S0 for mechanical reinforcement (included in the scope of supply)
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[2)] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- With the contactor S0, an integrated NO contact is still available for free use.

| Size | Standard three-phase motor 4-pole at 400 V AC[3)] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + RH mounting kit[4)]/wiring kit | Spring-loaded terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | | | | | | | | |
| | | | | **3RV20** | **3RT20** | **3RA29** | ToC 2 | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA20 | 15-2BB42 | 11-2AA00 | **3RA2210-0BE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA20 | | + 2913-2AA2 | **3RA2210-0CE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA20 | | | **3RA2210-0DE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA20 | | | **3RA2210-0EE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA20 | | | **3RA2210-0FE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA20 | | | **3RA2210-0GE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA20 | | | **3RA2210-0HE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA20 | | | **3RA2210-0JE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA20 | | | **3RA2210-0KE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA20 | | | **3RA2210-1AE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA20 | | | **3RA2210-1BE15-2BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA20 | | | **3RA2210-1CE15-2BB4** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA20 | | | **3RA2210-1DE15-2BB4** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA20 | | | **3RA2210-1EE15-2BB4** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 21-1FA20 | 24-2BB40 | 21-2AA00 | **3RA2220-1FF24-0BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 21-1GA20 | | + 2923-1BB2 | **3RA2220-1GF24-0BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 21-1HA20 | | | **3RA2220-1HF24-0BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 21-1JA20 | | | **3RA2220-1JF24-0BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 21-1KA20 | | | **3RA2220-1KF24-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA20 | 26-2BB40 | | **3RA2220-4AF26-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA20 | 27-2BB40 | | **3RA2220-4BF27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA20 | | | **3RA2220-4CF27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA20 | | | **3RA2220-4DF27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA20 | | | **3RA2220-4NF27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 29[5)] | 27 ... 32 | 21-4EA20 | | | **3RA2220-4EF27-0BB4** | | 1 | 1 unit | 41D |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA20 | 15-2BB42 | 11-2AA00 | **3RA2210-1FE15-2BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA20 | | + 2913-2AA2 | **3RA2210-1GE15-2BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA20 | | | **3RA2210-1HE15-2BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA20 | 16-2BB42 | | **3RA2210-1JE16-2BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA20 | 17-2BB42 | | **3RA2210-1KE17-2BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA20 | 18-2BB42 | | **3RA2210-4AE18-2BB4** | | 1 | 1 unit | 41D |

1) Push-in lugs, see "Accessories", page 8/52.
2) Auxiliary switches, see "Accessories", page 8/45.
3) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
4) RH = Mounting kit for reversing operation and DIN-rail mounting in size S0.
5) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.

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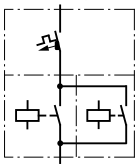
## 3RA22 reversing starters > for 60 mm busbars *IE3/IE4 ready* AC-3e

### Selection and ordering data

3RA2210

3RA2220

**Reversing operation**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0 and S2***
***With screw terminals***

- With busbar adapter and device holder (included in the scope of supply)
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- With contactor sizes S0 and S2, an integrated NO contact is still available for free use.

| Size | Standard three-phase motor 4-pole at 400 V AC[2] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + RS mounting kit[3]/ wiring kit | Screw terminals | | | |
| | kW | A | A | | | | Article No. | Basic price per PU | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | 3RV20 | 3RT20 | 3RA | ToC 2 | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA10 | 15-1AP02 | 1921-1DA00 | **3RA2210-0BD15-2AP0** | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA10 | | + 2913-1DB1 | **3RA2210-0CD15-2AP0** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA10 | | | **3RA2210-0DD15-2AP0** | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA10 | | | **3RA2210-0ED15-2AP0** | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA10 | | | **3RA2210-0FD15-2AP0** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA10 | | | **3RA2210-0GD15-2AP0** | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA10 | | | **3RA2210-0HD15-2AP0** | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA10 | | | **3RA2210-0JD15-2AP0** | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA10 | | | **3RA2210-0KD15-2AP0** | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA10 | | | **3RA2210-1AD15-2AP0** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA10 | | | **3RA2210-1BD15-2AP0** | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA10 | | | **3RA2210-1CD15-2AP0** | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA10 | | | **3RA2210-1DD15-2AP0** | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA10 | | | **3RA2210-1ED15-2AP0** | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 24-1AP00 | 2921-1AA00 | **3RA2220-1FD24-0AP0** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 2923-1DB1 | **3RA2220-1GD24-0AP0** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2220-1HD24-0AP0** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | | | **3RA2220-1JD24-0AP0** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | | | **3RA2220-1KD24-0AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA10 | 26-1AP00 | | **3RA2220-4AD26-0AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA10 | 27-1AP00 | | **3RA2220-4BD27-0AP0** | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA10 | | | **3RA2220-4CD27-0AP0** | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA10 | | | **3RA2220-4DD27-0AP0** | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA10 | | | **3RA2220-4ND27-0AP0** | 1 | 1 unit | 41D |
| | 15 | 29[4] | 27 ... 32 | 21-4EA10 | | | **3RA2220-4ED27-0AP0** | 1 | 1 unit | 41D |
| **S2** | 15 | 29 | 22 ... 32 | 32-4EA10 | 35-1AP00 | 2931-1AA00 | Size S2 is only available for self-assembly. | | | |
| | 18.5 | 35 | 28 ... 36 | 32-4PA10 | | + 2933-1DB1 | | | | |
| | 18.5 | 35 | 32 ... 40 | 32-4UA10 | | | | | | |
| | 22 | 41 | 35 ... 45 | 32-4VA10 | 36-1AP00 | | | | | |
| | 22 | 41 | 42 ... 50 | 32-4WA10 | | | | | | |
| | 30 | 55 | 49 ... 59 | 32-4XA10 | 37-1AP00 | | | | | |
| | 30 | 55 | 54 ... 65 | 32-4JA10 | | | | | | |
| | 37[5] | 66 | 62 ... 73 | 32-4KA10 | 38-1AP00 | | | | | |

1) Auxiliary switches, see "Accessories", page 8/45.
2) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
3) RS = Mounting kit for reversing operation and busbar mounting.
4) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.
5) Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.


* You can order this quantity or a multiple thereof.
Illustrations are approximate

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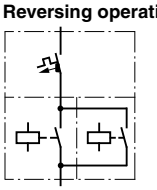
3RA2210

**Reversing operation**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00***
***With screw terminals***

- With busbar adapter and device holder (included in the scope of supply)
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.

| Size | Standard three-phase motor 4-pole at 400 V AC[2] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + RS mounting kit[3]/wiring kit | Screw terminals | | | |
| | kW | A | A | | | | Article No. | | | |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | **3RV20** | **3RT20** | **3RA** | ToC 1 | | | |
| **S00** | Load feeders for lower outputs, see table for type of coordination "2" on the previous page. | | | | | | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 15-1AP02 | 1921-1DA00 | **3RA2210-1FD15-2AP0** | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 2913-1DB1 | **3RA2210-1GD15-2AP0** | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2210-1HD15-2AP0** | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | 16-1AP02 | | **3RA2210-1JD16-2AP0** | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | 17-1AP02 | | **3RA2210-1KD17-2AP0** | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA10 | 18-1AP02 | | **3RA2210-4AD18-2AP0** | 1 | 1 unit | 41D |

1) Auxiliary switches, see "Accessories", page 8/45.
2) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
3) RS = Mounting kit for reversing operation and busbar mounting.

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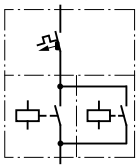
## 3RA22 reversing starters > for 60 mm busbars IE3/IE4 ready AC-3e

3RA2210

3RA2220

**Reversing operation**



***Rated control supply voltage***
***50/60 Hz 230 V AC for S00, 50 Hz 230 V AC for S0***
***With spring-loaded terminals***

- With busbar adapter and device holder (included in the scope of supply)
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- With the contactor S0, an integrated NO contact is still available for free use.

| Size | Standard three-phase motor 4-pole at 400 V AC[2] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + RS mounting kit[3]/wiring kit | Spring-loaded terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | | | | | | | | |
| | | | | **3RV20** | **3RT20** | **3RA29** | ToC 2 | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA20 | 15-2AP02 | 11-2AA00 | **3RA2210-0BH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA20 | | + 13-1DB2 | **3RA2210-0CH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA20 | | | **3RA2210-0DH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA20 | | | **3RA2210-0EH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA20 | | | **3RA2210-0FH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA20 | | | **3RA2210-0GH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA20 | | | **3RA2210-0HH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA20 | | | **3RA2210-0JH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA20 | | | **3RA2210-0KH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA20 | | | **3RA2210-1AH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA20 | | | **3RA2210-1BH15-2AP0** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA20 | | | **3RA2210-1CH15-2AP0** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA20 | | | **3RA2210-1DH15-2AP0** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA20 | | | **3RA2210-1EH15-2AP0** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 21-1FA20 | 24-2AP00 | 21-2AA00 | **3RA2220-1FH24-0AP0** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 21-1GA20 | | + 23-1DB2[4] | **3RA2220-1GH24-0AP0** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 21-1HA20 | | | **3RA2220-1HH24-0AP0** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 21-1JA20 | | | **3RA2220-1JH24-0AP0** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 21-1KA20 | | | **3RA2220-1KH24-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA20 | 26-2AP00 | | **3RA2220-4AH26-0AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA20 | 27-2AP00 | | **3RA2220-4BH27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA20 | | | **3RA2220-4CH27-0AP0** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA20 | | | **3RA2220-4DH27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA20 | | | **3RA2220-4NH27-0AP0** | | 1 | 1 unit | 41D |
| | 15 | 29[5] | 27 ... 32 | 21-4EA20 | | | **3RA2220-4EH27-0AP0** | | 1 | 1 unit | 41D |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA20 | 15-2AP02 | 11-2AA00 | **3RA2210-1FH15-2AP0** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA20 | | + 13-1DB2 | **3RA2210-1GH15-2AP0** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA20 | | | **3RA2210-1HH15-2AP0** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA20 | 16-2AP02 | | **3RA2210-1JH16-2AP0** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA20 | 17-2AP02 | | **3RA2210-1KH17-2AP0** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA20 | 18-2AP02 | | **3RA2210-4AH18-2AP0** | | 1 | 1 unit | 41D |

1) Auxiliary switches, see "Accessories", page 8/45.

2) The actual starting and rated data of the motor to be protected must be considered when selecting the units.

3) RS = Mounting kit for reversing operation and busbar mounting.

4) The RS mounting kit also includes the 3RA2911-1CA00 spacer for height compensation on AC contactors size S0 with spring-loaded terminals.

5) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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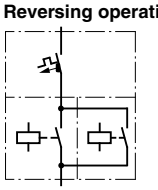
3RA2210

3RA2220

**Reversing operation**



***Rated control supply voltage 24 V DC***
***With screw terminals***

- With busbar adapter and device holder (included in the scope of supply)
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- With contactor sizes S0 and S2, an integrated NO contact is still available for free use.

| Size | Standard three-phase motor 4-pole at 400 V AC[2] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + RS mounting kit[3]/wiring kit | Screw terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | 3RV20 | 3RT20 | 3RA | | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA10 | 15-1BB42 | 1921-1DA00 | **3RA2210-0BD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA10 | | + 2913-1DB1 | **3RA2210-0CD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA10 | | | **3RA2210-0DD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA10 | | | **3RA2210-0ED15-2BB4** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA10 | | | **3RA2210-0FD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA10 | | | **3RA2210-0GD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA10 | | | **3RA2210-0HD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA10 | | | **3RA2210-0JD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA10 | | | **3RA2210-0KD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA10 | | | **3RA2210-1AD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA10 | | | **3RA2210-1BD15-2BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA10 | | | **3RA2210-1CD15-2BB4** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA10 | | | **3RA2210-1DD15-2BB4** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA10 | | | **3RA2210-1ED15-2BB4** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 24-1BB40 | 2921-1BA00 | **3RA2220-1FD24-0BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 2923-1DB1 | **3RA2220-1GD24-0BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2220-1HD24-0BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | | | **3RA2220-1JD24-0BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | | | **3RA2220-1KD24-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA10 | 26-1BB40 | | **3RA2220-4AD26-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA10 | 27-1BB40 | | **3RA2220-4BD27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA10 | | | **3RA2220-4CD27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA10 | | | **3RA2220-4DD27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA10 | | | **3RA2220-4ND27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 29[4] | 27 ... 32 | 21-4EA10 | | | **3RA2220-4ED27-0BB4** | | 1 | 1 unit | 41D |
| **S2** | 15 | 29 | 22 ... 32 | 32-4EA10 | 35-1NB30 | 2931-1AA00 | Size S2 is only available for self-assembly. | | | | |
| | 18.5 | 35 | 28 ... 36 | 32-4PA10 | | + 2933-1DB1 | | | | | |
| | 18.5 | 35 | 32 ... 40 | 32-4UA10 | | | | | | | |
| | 22 | 41 | 35 ... 45 | 32-4VA10 | 36-1NB30 | | | | | | |
| | 22 | 41 | 42 ... 50 | 32-4WA10 | | | | | | | |
| | 30 | 55 | 49 ... 59 | 32-4XA10 | 37-1NB30 | | | | | | |
| | 30 | 55 | 54 ... 65 | 32-4JA10 | | | | | | | |
| | 37[5] | 66 | 62 ... 73 | 32-4KA10 | 38-1NB30 | | | | | | |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA10 | 15-1BB42 | 1921-1DA00 | **3RA2210-1FD15-2BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA10 | | + 2913-1DB1 | **3RA2210-1GD15-2BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA10 | | | **3RA2210-1HD15-2BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA10 | 16-1BB42 | | **3RA2210-1JD16-2BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA10 | 17-1BB42 | | **3RA2210-1KD17-2BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA10 | 18-1BB42 | | **3RA2210-4AD18-2BB4** | | 1 | 1 unit | 41D |

1) Auxiliary switches, see "Accessories", page 8/45.
2) The actual starting and rated data of the motor to be protected must be considered when selecting the units.
3) RS = Mounting kit for reversing operation and busbar mounting.
4) Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.
5) Maximum permissible current setting at motor starter protector 65 A, as the maximum permissible current of the 3RA2931-1AA00 link module is 65 A.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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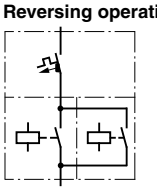
## 3RA22 reversing starters > for 60 mm busbars IE3/IE4 ready AC-3e

3RA2210

3RA2220

**Reversing operation**



***Rated control supply voltage 24 V DC***
***With spring-loaded terminals***

- With busbar adapter and device holder (included in the scope of supply)
- The motor starter protector and contactor are mechanically and electrically connected by means of the link module.
- Auxiliary switches[1] on the motor starter protector and the contactor can be easily fitted thanks to the modular system.
- With the contactor S0, an integrated NO contact is still available for free use.

| Size | Standard three-phase motor 4-pole at 400 V AC[2] | | Adjustable current response value of the inverse-time delayed overload release | Comprising the following single devices | | | Fuseless load feeder | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Standard output $P$ | Motor current $I$ (guide value) | | Motor starter protector | + 2 contactors | + Link module + RS mounting kit[3]/wiring kit | Spring-loaded terminals | | | | |
| | | | | | | | Article No. | Basic price per PU | | | |
| | kW | A | A | | | | | | | | |
| **Type of coordination "2" at $I_q$ = 150 kA at 400 V** (also compatible with type of coordination "1") | | | | **3RV20** | **3RT20** | **3RA29** | ToC 2 | | | | |
| **S00** | 0.06 | 0.2 | 0.14 ... 0.2 | 11-0BA20 | 15-2BB42 | 11-2AA00 | **3RA2210-0BH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.06 | 0.2 | 0.18 ... 0.25 | 11-0CA20 | | + 13-1DB2 | **3RA2210-0CH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.22 ... 0.32 | 11-0DA20 | | | **3RA2210-0DH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.09 | 0.3 | 0.28 ... 0.4 | 11-0EA20 | | | **3RA2210-0EH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.12 | 0.4 | 0.35 ... 0.5 | 11-0FA20 | | | **3RA2210-0FH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.45 ... 0.63 | 11-0GA20 | | | **3RA2210-0GH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.18 | 0.6 | 0.55 ... 0.8 | 11-0HA20 | | | **3RA2210-0HH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.25 | 0.85 | 0.7 ... 1 | 11-0JA20 | | | **3RA2210-0JH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.37 | 1.1 | 0.9 ... 1.25 | 11-0KA20 | | | **3RA2210-0KH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.55 | 1.5 | 1.1 ... 1.6 | 11-1AA20 | | | **3RA2210-1AH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.4 ... 2 | 11-1BA20 | | | **3RA2210-1BH15-2BB4** | | 1 | 1 unit | 41D |
| | 0.75 | 1.9 | 1.8 ... 2.5 | 11-1CA20 | | | **3RA2210-1CH15-2BB4** | | 1 | 1 unit | 41D |
| | 1.1 | 2.7 | 2.2 ... 3.2 | 11-1DA20 | | | **3RA2210-1DH15-2BB4** | | 1 | 1 unit | 41D |
| | 1.5 | 3.6 | 2.8 ... 4 | 11-1EA20 | | | **3RA2210-1EH15-2BB4** | | 1 | 1 unit | 41D |
| **S0** | 1.5 | 3.6 | 3.5 ... 5 | 21-1FA20 | 24-2BB40 | 21-2AA00 | **3RA2220-1FH24-0BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 21-1GA20 | | + 23-1DB2 | **3RA2220-1GH24-0BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 21-1HA20 | | | **3RA2220-1HH24-0BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 21-1JA20 | | | **3RA2220-1JH24-0BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 21-1KA20 | | | **3RA2220-1KH24-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 21-4AA20 | 26-2BB40 | | **3RA2220-4AH26-0BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 13 ... 20 | 21-4BA20 | 27-2BB40 | | **3RA2220-4BH27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 16 ... 22 | 21-4CA20 | | | **3RA2220-4CH27-0BB4** | | 1 | 1 unit | 41D |
| | 11 | 22 | 18 ... 25 | 21-4DA20 | | | **3RA2220-4DH27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 28 | 23 ... 28 | 21-4NA20 | | | **3RA2220-4NH27-0BB4** | | 1 | 1 unit | 41D |
| | 15 | 29[4] | 27 ... 32 | 21-4EA20 | | | **3RA2220-4EH27-0BB4** | | 1 | 1 unit | 41D |
| **Type of coordination "1" at $I_q$ = 150 kA at 400 V** (the motor starter protector is compatible with type of coordination "2") | | | | | | | | | | | |
| **S00** | For load feeders for lower outputs, see this table at type of coordination "2". | | | | | | ToC 1 | | | | |
| | 1.5 | 3.6 | 3.5 ... 5 | 11-1FA20 | 15-2BB42 | 11-2AA00 | **3RA2210-1FH15-2BB4** | | 1 | 1 unit | 41D |
| | 2.2 | 4.9 | 4.5 ... 6.3 | 11-1GA20 | | + 13-1DB2 | **3RA2210-1GH15-2BB4** | | 1 | 1 unit | 41D |
| | 3 | 6.5 | 5.5 ... 8 | 11-1HA20 | | | **3RA2210-1HH15-2BB4** | | 1 | 1 unit | 41D |
| | 4 | 8.5 | 7 ... 10 | 11-1JA20 | 16-2BB42 | | **3RA2210-1JH16-2BB4** | | 1 | 1 unit | 41D |
| | 5.5 | 11.5 | 9 ... 12.5 | 11-1KA20 | 17-2BB42 | | **3RA2210-1KH17-2BB4** | | 1 | 1 unit | 41D |
| | 7.5 | 15.5 | 10 ... 16 | 11-4AA20 | 18-2BB42 | | **3RA2210-4AH18-2BB4** | | 1 | 1 unit | 41D |

[1] Auxiliary switches, see "Accessories", page 8/45.

[2] The actual starting and rated data of the motor to be protected must be considered when selecting the units.

[3] RS = Mounting kit for reversing operation and busbar mounting.

[4] Suitable for use with IE3 and IE4 motors up to a starting current of 256 A. For higher starting currents we recommend using size S2.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

The accessories listed here are parts and add-ons for the 3RA2 direct-on-line and reversing starters as well as components for the customer assembly of fuseless load feeders.

## Selection and ordering data

### *Accessories for motor starter protectors*

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E

3RV2901-1E

3RV2901-2E

3RV2901-1A

3RV2901-2A

| Version | For motor starter protectors | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|
| | | Article No. | Price per PU | Article No. | Price per PU |
| | Size | | | | |
| **Auxiliary switches**[1] | | | | | |
| **Transverse auxiliary switches** For front mounting | | | | | |
| 1 CO | S00 ... S3 | **3RV2901-1D** | | -- | |
| 1 NO + 1 NC | | **3RV2901-1E** | | **3RV2901-2E** | |
| 2 NO | | **3RV2901-1F** | | **3RV2901-2F** | |
| **Lateral auxiliary switches** For mounting on the left | | | | | |
| 1 NO + 1 NC | S00 ... S3 | **3RV2901-1A** | | **3RV2901-2A** | |

[1] Each motor starter protector can be fitted with one transverse and one lateral auxiliary switch. The lateral auxiliary switch with 2 NO + 2 NC is used without a transverse auxiliary switch.

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41E

3RV2902-1A..

3RV2902-2A..

| Rated control supply voltage $U_s$ | | | | For motor starter protectors | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | AC 60 Hz | AC 50/60 Hz 100% ON period[1] | AC/DC 50/60 Hz, DC 5 s ON period[2] | | Article No. | Price per PU | Article No. | Price per PU |
| V | V | V | V | Size | | | | |
| **Auxiliary releases for motor starter protectors**[3] | | | | | | | | |
| **Undervoltage releases** | | | | | | | | |
| 230 | 240 | -- | -- | S00 ... S3 | **3RV2902-1AP0** | | **3RV2902-2AP0** | |
| **Shunt releases** | | | | | | | | |
| -- | -- | 210 ... 240 | 190 ... 330 | S00 ... S3 | **3RV2902-1DP0** | | **3RV2902-2DP0** | |

[1] The voltage range is valid for 100% (infinite) ON period. The response voltage lies at 0.9 of the lower limit of the voltage range.

[2] The voltage range is valid for 5 s ON period at 50/60 Hz AC and DC. The response voltage lies at 0.85 of the lower limit of the voltage range.

[3] One auxiliary release can be mounted on the right per motor starter protector (does not apply to 3RV21 motor starter protectors with overload relay function).

For the complete range of accessories for the motor starter protectors, see page 7/47 onwards.

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## Accessories

### *Accessories for contactors*

| | For contactors<br>Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Auxiliary switches for snapping onto the front of contactors** | | | | | | | |
| 3RH2911-1BA.. | | | **Screw terminals** | | | | |
| | Cable entry from below | | | | | | |
| | S00 ... S3 | 1-pole | | | | | |
| | | - 1 NO | **3RH2911-1BA10** | | 1 | 1 unit | 41B |
| | | - 1 NC | **3RH2911-1BA01** | | 1 | 1 unit | 41B |
| 3RH2911-1MA.. | S00 ... S3 | 2-pole | | | | | |
| | | - 1 NO + 1 NC | **3RH2911-1MA11** | | 1 | 1 unit | 41B |
| | | - 2 NO | **3RH2911-1MA20** | | 1 | 1 unit | 41B |
| **Auxiliary switches for contactors, for lateral mounting** | | | | | | | |
| 3RH2911-1DA.. | | | **Screw terminals** | | | | |
| | S00 | 2 NC | **3RH2911-1DA02** | | 1 | 1 unit | 41B |
| | S00 | 1 NO + 1 NC | **3RH2911-1DA11** | | 1 | 1 unit | 41B |
| | S00 | 2 NO | **3RH2911-1DA20** | | 1 | 1 unit | 41B |
| | S0/S3 | 2 NC | **3RH2921-1DA02** | | 1 | 1 unit | 41B |
| | S0/S3 | 1 NO + 1 NC | **3RH2921-1DA11** | | 1 | 1 unit | 41B |
| | S0/S3 | 2 NO | **3RH2921-1DA20** | | 1 | 1 unit | 41B |
| 3RH2911-2DA.. | | | **Spring-loaded terminals** | | | | |
| | S00 | 2 NC | **3RH2911-2DA02** | | 1 | 1 unit | 41B |
| | S00 | 1 NO + 1 NC | **3RH2911-2DA11** | | 1 | 1 unit | 41B |
| | S00 | 2 NO | **3RH2911-2DA20** | | 1 | 1 unit | 41B |
| | S0/S3 | 2 NC | **3RH2921-2DA02** | | 1 | 1 unit | 41B |
| | S0/S3 | 1 NO + 1 NC | **3RH2921-2DA11** | | 1 | 1 unit | 41B |
| | S0/S3 | 2 NO | **3RH2921-2DA20** | | 1 | 1 unit | 41B |
| **Connection module (adapter and plug) for contactors with screw terminals (can only be used for direct-on-line starters)** | | | | | | | |
| 3RT1926-4RD01 | The connection module comprises an adapter and a motor feeder connector. | | **Screw terminals** | | | | |
| | **Adapters**<br>Ambient temperature $T_{u\,max.}$ = 60 °C | | | | | | |
| | S00 | Rated operational current $I_e$ at AC-3 and AC-3e/400 V: 20 A | **3RT1916-4RD01** | | 1 | 1 unit | 41B |
| | S0 | Rated operational current $I_e$ at AC-3 and AC-3e/400 V: 25 A | **3RT1926-4RD01** | | 1 | 1 unit | 41B |
| 3RT1900-4RE01 | **Motor feeder connector** | | | | | | |
| | S00, S0 | -- | **3RT1900-4RE01** | | 1 | 1 unit | 41B |

For the complete range of accessories for the 3RT contactors, see page 3/69 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| For contactors Type | Version | Rated control supply voltage $U_s$[1] AC operation V AC | DC operation V DC | Article No.[2] | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Surge suppressors without LED for contactors (also for spring-loaded terminals)** | | | | | | | | |
| | ***Size S00*** | | | | | | | |
| | **For plugging onto the front side of the contactors (with or without auxiliary switches)** | | | | | | | |
| 3RT2.1 | **Varistors** | 24 ... 48 | 24 ... 70 | **3RT2916-1BB00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2916-1BD00** | | 1 | 1 unit | 41B |
| 3RT2.1 | **RC element** | 24 ... 48 | 24 ... 70 | **3RT2916-1CB00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2916-1CD00** | | 1 | 1 unit | 41B |
| 3RT2.1 | **Interference suppression diode** | -- | 12 ... 250 | **3RT2916-1DG00** | | 1 | 1 unit | 41B |
| 3RT2.1 | **Diode assemblies** (diode and Zener diode) For DC operation | -- | 12 ... 250 | **3RT2916-1EH00** | | 1 | 1 unit | 41B |
| | ***Size S0*** | | | | | | | |
| | **For plugging onto the front side of the contactors (before installing the auxiliary switch)** | | | | | | | |
| 3RT2.2 | **Varistors**[2] | 24 ... 48 | 24 ... 70 | **3RT2926-1BB00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2926-1BD00** | | 1 | 1 unit | 41B |
| 3RT2.2 | **RC element** | 24 ... 48 | 24 ... 70 | **3RT2926-1CB00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2926-1CD00** | | 1 | 1 unit | 41B |
| 3RT2.2 | **Diode assemblies** | -- | 24 | **3RT2926-1ER00** | | 1 | 1 unit | 41B |
| | For DC operation | -- | 30 ... 250 | **3RT2926-1ES00** | | 1 | 1 unit | 41B |
| | ***Size S2*** | | | | | | | |
| | **For plugging onto the front side of the contactors (before installing the auxiliary switch)** | | | | | | | |
| 3RT2.3 | **Varistors**[2] | 24 ... 48 | -- | **3RT2936-1BB00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | -- | **3RT2936-1BD00** | | 1 | 1 unit | 41B |
| 3RT2.3 | **RC element** | 24 ... 48 | 24 ... 70 | **3RT2936-1CB00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2936-1CD00** | | 1 | 1 unit | 41B |
| 3RT2.3 | **Diode assemblies** | -- | 24 | **3RT2936-1ER00** | | 1 | 1 unit | 41B |
| | For DC operation | -- | 30 ... 250 | **3RT2936-1ES00** | | 1 | 1 unit | 41B |
| | ***Size S3*** | | | | | | | |
| | **For plugging onto the front side of the contactors (before installing the auxiliary switch)** | | | | | | | |
| 3RT2.4 | **Varistors**[2] | 24 ... 48 | -- | **3RT2936-1BB00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | -- | **3RT2936-1BD00** | | 1 | 1 unit | 41B |
| 3RT2.4 | **Diode assemblies** | -- | 24 | **3RT2936-1ER00** | | 1 | 1 unit | 41B |
| | For DC operation | -- | 30 ... 250 | **3RT2936-1ES00** | | 1 | 1 unit | 41B |
| | **For plugging into the two recesses on the left of the connection block for auxiliary switches and coils A1 and A2. The connecting cables are wired to A1 and A2, see also page 3/11.** | | | | | | | |
| 3RT2.4 | **RC element** | 24 ... 48 | 24 ... 70 | **3RT2946-1CB00** | | 1 | 1 unit | 41B |
| | | 127 ... 240 | 150 ... 250 | **3RT2946-1CD00** | | 1 | 1 unit | 41B |

3RT2916-1B.00

3RT2926-1E.00

3RT2936-1B.00

3RT2936-1B.00

3RT2946-1C.00

[1] Can be used for AC operation for 50/60 Hz. Please inquire about further voltages.

[2] The varistor is already integrated on the AC/DC contactors.

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## Accessories

***Accessories for the customer assembly of fuseless load feeders***

| | For motor starter protectors | For contactors | Control circuit voltage contactors | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | Size | Size | | | | | | |
| **Link modules from motor starter protector to contactor[1]** | | | | | | | | |
| | Connection between motor starter protector and contactor with screw terminals | | | **Screw terminals** | | | | |
| | **Single-unit packaging** | | | | | | | |
| 3RA2921-1AA00 | S00/S0 | S00 | AC/DC | **3RA1921-1DA00** | | 1 | 1 unit | 41B |
| | S00/S0 | S0 | AC | **3RA2921-1AA00** | | 1 | 1 unit | 41B |
| 3RA2931-1AA00 | S00/S0 | S0 | DC, AC/DC | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| | S2 | S2 | AC, DC, AC/DC | **3RA2931-1AA00** | | 1 | 1 unit | 41B |
| | S3 | S3 | AC, DC, AC/DC | **3RA1941-1AA00** | | 1 | 1 unit | 41B |
| | **Multi-unit packaging** | | | | | | | |
| 3RA1941-1AA00 | S00/S0 | S00 | AC/DC | **3RA1921-1D** | | 1 | 10 units | 41B |
| | S00/S0 | S0 | AC | **3RA2921-1A** | | 1 | 10 units | 41B |
| | S00/S0 | S0 | DC, AC/DC | **3RA2921-1B** | | 1 | 10 units | 41B |
| | S2 | S2 | AC, DC, AC/DC | **3RA2931-1A** | | 1 | 5 units | 41B |
| | S3 | S3 | AC, DC, AC/DC | **3RA1941-1A** | | 1 | 5 units | 41B |
| | Connection between motor starter protector and contactor with spring-loaded terminals | | | **Spring-loaded terminals** | | | | |
| | **Single-unit packaging** | | | | | | | |
| 3RA2911-2AA00 | S00 | S00 | AC/DC | **3RA2911-2AA00** | | 1 | 1 unit | 41B |
| | S0 | S0 | AC[2], DC, AC/DC | **3RA2921-2AA00** | | 1 | 1 unit | 41B |
| | **Multi-unit packaging** | | | | | | | |
| | S00 | S00 | AC/DC | **3RA2911-2A** | | 1 | 10 units | 41B |
| | S0 | S0 | AC[2], DC, AC/DC | **3RA2921-2A** | | 1 | 10 units | 41B |
| **Hybrid link modules from motor starter protector to contactor[3]** | | | | | | | | |
| | Connection between motor starter protector with screw terminals and contactor with spring-loaded terminals | | | | | | | |
| | **Single-unit packaging** | | | | | | | |
| 3RA2911-2FA00 | S00 | S00 | AC/DC | **3RA2911-2FA00** | | 1 | 1 unit | 41B |
| | S0 | S0 | AC[2], DC, AC/DC | **3RA2921-2FA00** | | 1 | 1 unit | 41B |
| | **Multi-unit packaging** | | | | | | | |
| 3RA2921-2FA00 | S00 | S00 | AC/DC | **3RA2911-2F** | | 1 | 10 units | 41B |
| | S0 | S0 | AC[2], DC, AC/DC | **3RA2921-2F** | | 1 | 10 units | 41B |

1) The link modules from motor starter protector to contactor cannot be used for the 3RV1011, 3RV2.21-4PA1., 3RV2.21-4FA1., 3RV2.31-4K.1., 3RV2.31-4R.1., 3RV2.32-4K.1., 3RV2.32-4R.1., 3RV27 and 3RV28 motor starter protectors/circuit breakers.

2) A spacer for height compensation on AC contactors, size S0, is optionally available, see page 8/54.

3) The hybrid link modules for motor starter protector to contactor cannot be used for the 3RV1011, 3RV2.21-4PA1., 3RV2.21-4FA1., 3RV27 and 3RV28 motor starter protectors/circuit breakers. They are only suitable for assembling direct-on-line starters.

Note:

Link modules can be used in

- Size S00 up to max. 16 A
- Size S0 up to max. 32 A
- Size S2 up to max. 65 A

Hybrid link modules can be used in

- Size S00 up to max. 16 A
- Size S0 up to max. 32 A



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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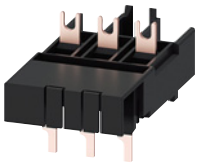
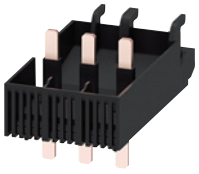
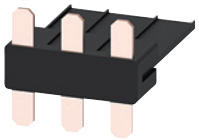
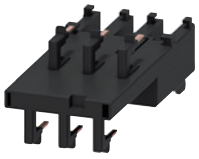
| | For motor starter protectors | For 3RW30, 3RW40 soft starters; 3RF34 solid-state contactors | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | Size | Size | | | | | |
| **Link modules for motor starter protector to soft starter[1] and motor starter protector to solid-state contactor[1]** | | | | | | | |
|  3RA2921-1BA00 | Connection between motor starter protector and soft starter/solid-state contactor with screw terminals | | **Screw terminals** | | | | |
| | **Single-unit packaging** | | | | | | |
| | S00/S0 | S00/S0 | **3RA2921-1BA00** | | 1 | 1 unit | 41B |
| | S2[2] | S2 | **3RA2931-1AA00** | | 1 | 1 unit | 41B |
| | S3[3] | S3 | **3RA1941-1AA00** | | 1 | 1 unit | 41B |
| | **Multi-unit packaging** | | | | | | |
| | S00/S0 | S00/S0 | **3RA2921-1B** | | 1 | 10 units | 41B |
| | S2[2] | S2[2] | **3RA2931-1A** | | 1 | 5 units | 41B |
| | S3[3] | S3[3] | **3RA1941-1A** | | 1 | 5 units | 41B |
|  3RA2931-1AA00 | Connection between motor starter protector and soft starter with spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | **Single-unit packaging** | | | | | | |
| | S00 | S00 | **3RA2911-2GA00** | | 1 | 1 unit | 41B |
|  3RA1941-1AA00 | S0 | S0 | **3RA2921-2GA00** | | 1 | 1 unit | 41B |
|  3RA2921-2GA00 | | | | | | | |

[1] The link modules from motor starter protector to soft starter and motor starter protector to solid-state contactor cannot be used for the 3RV1011, 3RV2.21-4PA1., 3RV2.21-4FA1., 3RV2.31-4K.1., 3RV2.31-4R.1., 3RV2.32-4K.1., 3RV2.32-4R.1., 3RV27 and 3RV28 motor starter protectors/circuit breakers.

[2] To assemble the feeder between a motor starter protector and a soft starter in size S2, the 3RA2932-1CA00 DIN-rail adapter must be used.

[3] It is only permitted to assemble the feeder between the motor starter protector and the soft starter in size S3 on a mounting plate.

Note:

Link modules can be used in

- Size S00 up to max. 16 A
- Size S0 up to max. 32 A
- Size S2 up to max. 65 A

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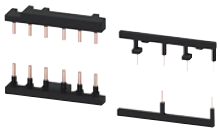
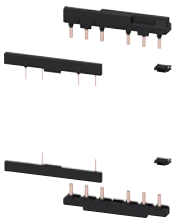
## Accessories

PU (UNIT, SET, M) = 1
PS* = 1 unit (unless otherwise specified)
PG = 41B



3RA2923-2AA1



3RA2933-2AA1

3RA2923-2AA2

| For contactors | Size | Version | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|
| Type | | | Article No. | Price per PU | Article No. | Price per PU |
| **Assembly kits for reversing contactor assemblies for making 3-pole contactor assemblies** | | | | | | |
| 3RT201 | **S00-S00** | The assembly kit contains: Mechanical interlock, two connecting clips for two contactors, wiring modules on the top and bottom | | | | |
| | | • For main, auxiliary and control circuits | **3RA2913-2AA1** | | **3RA2913-2AA2** | |
| 3RT202 | **S0-S0** | The assembly kit contains: Mechanical interlock, two connecting clips for two contactors, wiring modules on the top and bottom | | | | |
| | | • For main, auxiliary and control circuits[1] | **3RA2923-2AA1** | | **--** | |
| | | • Only for main circuit[2] | **--** | | **3RA2923-2AA2** | |
| 3RT203 | **S2-S2** | The assembly kit contains: Two connectors for two contactors, wiring modules on the top and bottom (3RA2934-2B mechanical interlock must be ordered separately, see page 3/108) | | | | |
| | | • For main and auxiliary circuits | **3RA2933-2AA1** | | **--** | |
| | | • Only for main circuit[3] | **--** | | **3RA2933-2AA2** | |
| 3RT204 | **S3-S3** | The assembly kit contains: Two connectors for two contactors, wiring modules on the top and bottom (3RA2934-2B mechanical interlock must be ordered separately, see page 3/108) | | | | |
| | | • For main and auxiliary circuits | **3RA2943-2AA1** | | **--** | |
| | | • Only for main circuit[3] | **--** | | **3RA2943-2AA2** | |

1) Use of the 3RA2923-2AA1 assembly kit in conjunction with the 3RT202.-.....-3MA0 contactors is limited because the auxiliary switches in the basic unit are not allowed to be used on account of the permanently mounted auxiliary switch.

2) Version in size S0 with spring-loaded terminals:
Only the wiring modules for the main circuit are included.
No connecting clips are included for the auxiliary and control circuit.

3) Version in sizes S2 and S3 with spring-loaded terminals in the auxiliary and control circuits: Only the wiring modules for the main circuit are included.
A cable set is included for the auxiliary circuit.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| For contactors Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Safety main circuit connectors for two contactors** | | | | | | |
| | For switching two contactors in series | **Screw terminals** | | | | |
| S00 | | **3RA2916-1A** | | 1 | 1 unit | 41B |
| S0 | | **3RA2926-1A** | | 1 | 1 unit | 41B |
| S2 | | **3RA2936-1A** | | 1 | 1 unit | 41B |

3RA2916-1A

| For motor starter protectors | For contactors | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Mounting rails for mounting contactors for the customer assembly of 3RA21 load feeders with busbar adapters for 60 mm systems** | | | | | | | |
| | | For the discrete configuration of direct-on-line starters a further mounting rail is needed for the contactor in addition to the mounting rail for the motor starter protector existing on the busbar adapter. | | | | | |
| -- | S0 | For pushing onto the device adapter, including fixing screws | **8US1998-7CB45** | | 1 | 10 units | 14O |

8US1998-7CB45

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **DIN-rail adapters** | | | | | | | |
| | | For mechanical fixing of motor starter protector and contactor; for snapping onto DIN rail or for screw fixing | | | | | |
| S00, S00 | S00, S00 | **Short, single-unit packaging** | **3RA2922-1BA00** | | 1 | 1 unit | 41B |
| S00, S00 | S00, S00 | **Short, multi-unit packaging** | **3RA2922-1B** | | 1 | 5 units | 41B |
| S00, S0 | S00, S0 | **Single-unit packaging** | **3RA2922-1AA00** | | 1 | 1 unit | 41B |
| S00, S0 | S00, S0 | **Multi-unit packaging** | **3RA2922-1A** | | 1 | 5 units | 41B |
| S2 | S2 | **Single-unit packaging** | **3RA2932-1AA00** | | 1 | 1 unit | 41B |
| S2 | S2 | **Multi-unit packaging** | **3RA2932-1A** | | 1 | 5 units | 41B |
| S3 | S3 | **Single-unit packaging** | **3RA2942-1AA00** | | 1 | 1 unit | 41B |
| S3 | S3 | **Multi-unit packaging** | **3RA2942-1A** | | 1 | 5 units | 41B |

3RA2922-1AA00

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | For mechanical fixing of motor starter protector and soft starter; for snapping onto DIN rail or for screw fixing | | | | | |
| S2 | S2 | **Single-unit packaging** | **3RA2932-1CA00** | | 1 | 1 unit | 41B |

3RA2932-1CA00

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Side modules for DIN-rail adapters** | | | | | | | |
| S00 ... S3 | S00 ... S3 | For DIN-rail adapters 10 mm wide, 96 mm long: for widening DIN-rail adapters when using lateral auxiliary switches, 2 units required | **3RA2902-1B** | | 1 | 10 units | 41B |

3RA2902-1B

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Connecting wedges** | | | | | | | |
| | | For mechanical linking of DIN-rail adapters (2 units required for mounting) | **8US1998-1AA00** | | 100 | 100 units | 14O |

8US1998-1AA00

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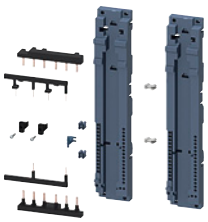
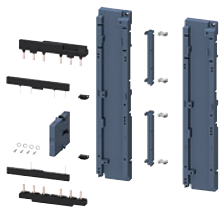
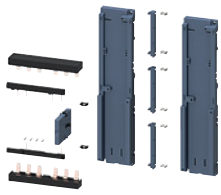
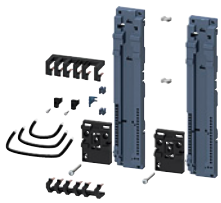
## Accessories

| | For motor starter protectors | For contactors | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **RH mounting kits for reversing operation and DIN-rail mounting** | | | | | | | | |
| | **RH mounting kits for screw terminals** | | | **Screw terminals** | | | | |
|  3RA2923-1BB1 | S0 | S0 | Comprising:<br>• Wiring kit for main and auxiliary circuit<br>• Two DIN-rail adapters<br>• Two connecting wedges<br>• Mechanical interlocks<br>• Two connecting clips for two contactors<br>• Fixing accessories<br>Link modules must be ordered separately. | **3RA2923-1BB1** | | 1 | 1 unit | 41B |
|  3RA2933-1BB1 | S2 | S2 | Comprising:<br>• Wiring kit for main and auxiliary circuit<br>• Two DIN-rail adapters<br>• Two side modules<br>• Four connecting wedges<br>• Mechanical interlocks<br>• Two connectors for two contactors<br>• Fixing accessories<br>Link modules must be ordered separately. | **3RA2933-1BB1** | | 1 | 1 unit | 41B |
|  3RA2943-1BB1 | S3 | S3 | Comprising:<br>• Wiring kit for main and auxiliary circuit<br>• Two DIN-rail adapters<br>• Three side modules<br>• Six connecting wedges<br>• Mechanical interlocks<br>• Two connectors for two contactors<br>• Fixing accessories<br>Link modules must be ordered separately. | **3RA2943-1BB1** | | 1 | 1 unit | 41B |
| | **RH mounting kits for spring-loaded terminals** | | | **Spring-loaded terminals** | | | | |
|  3RA2923-1BB2 | S0 | S0 | Comprising:<br>• Wiring kit for main and auxiliary circuit<br>• Two DIN-rail adapters<br>• Two connecting wedges<br>• Mechanical interlocks<br>• Two connecting clips for two contactors<br>• Two spacers<br>• Fixing accessories<br>Link modules must be ordered separately. | **3RA2923-1BB2** | | 1 | 1 unit | 41B |
| **Push-in lugs for screw fixing** | | | | | | | | |
| 3RV2928-0B | S00, S0 | -- | For screw fixing of motor starter protector (of the load feeder) on mounting plates; 2 units are required for each motor starter protector | **3RV2928-0B** | | 100 | 10 units | 41E |

For overview graphics for RH mounting kits, see page 8/13 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***Busbar adapters***

8US1251-5DS10

8US1251-5DT11

8US1250-5AS10

8US1250-5AT10

| For load feeders | Rated current | Connecting cable | Adapter length | Adapter width | Rated voltage | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| Size | A | AWG | mm | mm | V | | | | | |
| **Busbar adapters for 60 mm systems** | | | | | | | | | | |
| For copper busbars according to DIN 46433<br>Width: 12 mm and 30 mm<br>Thickness: 5 mm and 10 mm<br>and for T and double-T special profiles | | | | | | | | | | |
| • For load feeders with screw terminals | | | | | | **Screw terminals** | | | | |
| S00/S0 | 25 | 12 | 200 | 45 | 690 | **8US1251-5DS10** | | 1 | 1 unit | 14O |
| S00 (motor starter protector)/<br>S0 (contactor) | 25 | 12 | 260 | 45 | 690 | **8US1251-5DT10** | | 1 | 1 unit | 14O |
| S0 | 32 | 10 | 200 | 45 | 690 | **8US1251-5NS10** | | 1 | 1 unit | 14O |
| S0 | 32 | 10 | 260 | 45 | 690 | **8US1251-5NT10** | | 1 | 1 unit | 14O |
| S2 | 80 | 4 | 260 | 55 | 690 | **8US1261-6MT10** | | 1 | 1 unit | 14O |
| S2[1] | 80 | 4 | 260 | 118 | 690 | **8US1211-6MT10** | | 1 | 1 unit | 14O |
| • For load feeders with spring-loaded terminals | | | | | | **Spring-loaded terminals** | | | | |
| S00 | 25 | 12 | 200 | 45 | 690 | **8US1251-5DS11** | | 1 | 1 unit | 14O |
| S00/S0 | 25 | 12 | 260 | 45 | 690 | **8US1251-5DT11** | | 1 | 1 unit | 14O |
| S0 | 32 | 10 | 200 | 45 | 690 | **8US1251-5NS11** | | 1 | 1 unit | 14O |
| S0 | 32 | 10 | 260 | 45 | 690 | **8US1251-5NT11** | | 1 | 1 unit | 14O |
| **Accessories**[2] | | | | | | | | | | |
| **Device holders**<br>For lateral attachment to busbar adapters | --<br>-- | --<br>-- | 200<br>260 | 45<br>45 | --<br>-- | **8US1250-5AS10**<br>**8US1250-5AT10** | | 1<br>1 | 1 unit<br>1 unit | 14O<br>14O |
| **Side modules**<br>For widening busbar adapters | -- | -- | 200 | 9 | -- | **8US1998-2BJ10** | | 1 | 10 units | 14O |
| **Vibration and shock kits**<br>For high vibration and shock loads | | | | | | | | | | |
| S2 | -- | -- | -- | -- | -- | **8US1998-1DA10** | | 1 | 1 unit | 14O |

[1] For the assembly of load feeders for reversing starters comprising a motor starter protector and two contactors.

[2] Additional mounting rails for busbar adapters, see page 8/51.

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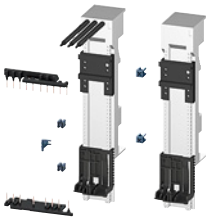
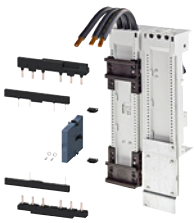
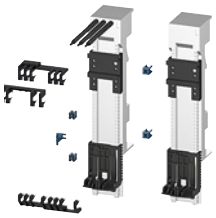
## Accessories

| | For motor starter protectors Size | For contac-tors Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **RS mounting kits for reversing operation and 60 mm busbar systems** | | | | | | | | |
| | | | **RS mounting kits for screw terminals** | **Screw terminals** | | | | |
|  3RA2913-1DB1 | S00, S0 | S00 | Comprising: | **3RA2913-1DB1** | | 1 | 1 unit | 41B |
| | S0 | S0 | • Wiring kit for main and auxiliary circuit | **3RA2923-1DB1** | | 1 | 1 unit | 41B |
| | S00 | S0 | • Busbar adapters | **3RA2923-1EB1** | | 1 | 1 unit | 41B |
| | | | • Device holders | | | | | |
| | | | • Two connecting wedges | | | | | |
| | | | • Mechanical interlocks | | | | | |
| | | | • Two connecting clips for two contactors | | | | | |
| | | | • Fixing accessories | | | | | |
| | | | Link modules must be ordered separately. | | | | | |
|  3RA2933-1DB1 | S2 | S2 | Comprising: | **3RA2933-1DB1** | | 1 | 1 unit | 41B |
| | | | • Wiring kit for main and auxiliary circuit | | | | | |
| | | | • Busbar adapters | | | | | |
| | | | • Mechanical interlocks | | | | | |
| | | | • Two connectors for two contactors | | | | | |
| | | | • Fixing accessories | | | | | |
| | | | Link modules must be ordered separately. | | | | | |
| | | | **RS mounting kits for spring-loaded terminals** | **Spring-loaded terminals** | | | | |
|  3RA2913-1DB2 | S00 | S00 | Comprising: | **3RA2913-1DB2** | | 1 | 1 unit | 41B |
| | S0 | S0 | • Wiring kit for main and auxiliary circuit | **3RA2923-1DB2** | | 1 | 1 unit | 41B |
| | | | • Busbar adapters | | | | | |
| | | | • Device holders | | | | | |
| | | | • Two connecting wedges | | | | | |
| | | | • Mechanical interlocks | | | | | |
| | | | • Two connectors for two contactors | | | | | |
| | | | • Two spacers (for size S0 only) | | | | | |
| | | | • Fixing accessories | | | | | |
| | | | Link modules must be ordered separately. | | | | | |

For overview graphics for RS mounting kits, see page 8/16 onwards.

| | For motor starter protectors Size | For contac-tors Size | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Connecting wedges** | | | | | | | | |
| 8US1998-1AA10 | | | For mechanical linking of busbar adapters and device holders | **8US1998-1AA10** | | 1 | 50 units | 14O |
| **Spacers** | | | | | | | | |
| 3RA2911-1CA00 | | | For height compensation on AC contactors size S0 with spring-loaded terminals | **Spring-loaded terminals** | | | | |
| | S0 | S0 | **Single-unit packaging** | **3RA2911-1CA00** | | 1 | 1 unit | 41B |
| | S0 | S0 | **Multi-unit packaging** | **3RA2911-1C** | | 1 | 5 units | 41B |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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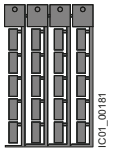
| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdriver**<br>For all SIRIUS devices with spring-loaded terminals<br>Length, approx. 200 mm,<br>3.0 mm x 0.5 mm,<br>titanium gray/black,<br>partially insulated | **Spring-loaded terminals**<br>**3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1]<br>For SIRIUS devices<br>20 mm x 7 mm,<br>titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Manuals** | | | | | | |
| | **Configuration Manual for load feeders**<br>see<br>https://support.industry.siemens.com/cs/ww/en/view/39714188. | | | | | |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

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## 3RV29 infeed system for load feeders

### Overview

***Types of infeed for 3RA2 fuseless load feeders***

On the whole four different power infeed possibilities are available:

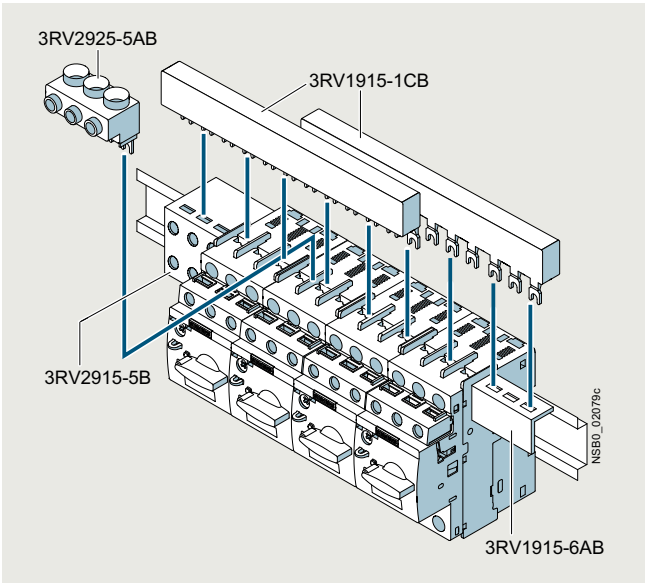
- Parallel wiring
- Use of 3-phase busbars (combination with SIRIUS motor starter protectors and contactors possible)
- 8US busbar adapters
- SIRIUS 3RV29 infeed systems

***Insulated 3-phase busbar system***

3-phase busbar systems provide an easy, time-saving and clearly arranged means of feeding 3RA2 load feeders with screw terminals. Different versions are available for sizes S00 and S0 and can also be used for the various different types of motor starter protectors.

The busbars are suitable for between two and five feeders. However, any kind of extension is possible by clamping the connection tags of an additional busbar (rotated 180°) underneath the terminals of the respective last motor starter protector.

A combination of feeders of different sizes is possible with sizes S00 and S0. Connecting pieces are available for this purpose. The motor starter protectors are supplied by appropriate infeed terminals.




SIRIUS 3-phase busbar system size S00/S0

The 3-phase busbar systems are finger-safe. They are designed for any short-circuit stress which can occur at the output side of connected motor starter protectors.

The 3-phase busbar systems can also be used to construct "Starters (Type E)" of size S0 or S2 according to UL/CSA. However, special infeed terminals must be used for this purpose, see page 7/52.

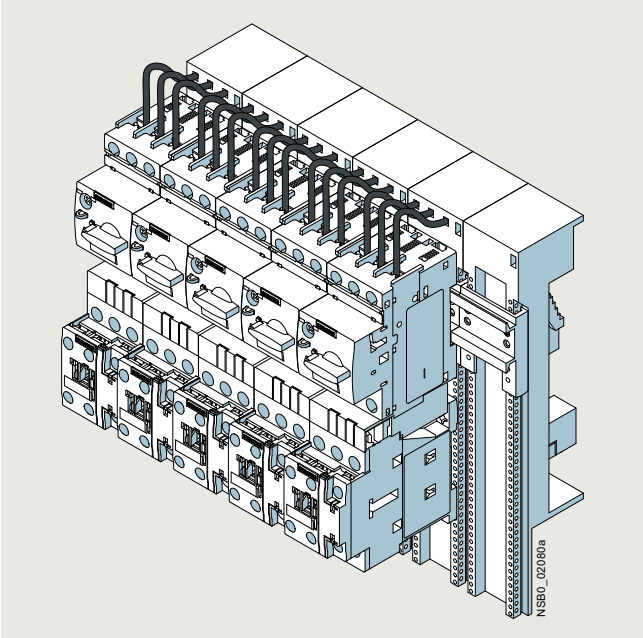
***8US busbar adapters for 60 mm systems***

The load feeders are mounted directly with the aid of busbar adapters on busbar systems with 60 mm center-to-center clearance in order to save space and to reduce infeed times and costs.

The busbar adapters for busbar systems with 60 mm center-to-center clearance are suitable for copper busbars with a width of 12 to 30 mm. The busbars can be 4 to 5 mm or 10 mm thick.

The feeders are snapped onto the adapter and connected on the line side. This prepared unit is then plugged directly onto the busbar system, and is thus connected both mechanically and electrically at the same time.

"Selection and ordering data", see page 8/53.




SIRIUS load feeders with busbar adapters snapped onto busbars

***SIRIUS 3RV29 infeed system***

The 3RV29 infeed system is a convenient means of energy supply and distribution for a group of several motor starter protectors or complete load feeders with screw or spring-loaded terminals up to size S0.

The system is based on a basic module complete with a lateral incoming unit (3-phase busbar with infeed) which has two slots.

Expansion modules are available for extending the system (3-phase busbars for system expansion).

3RV29 infeed system, see page 7/67.

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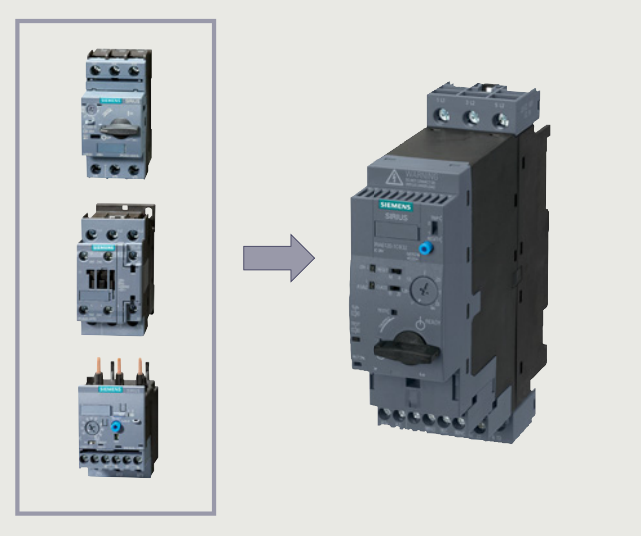
## Overview

***3RA6 fuseless compact starters and infeed system for 3RA6***

3RA62 reversing starter

Integrated functionality

The SIRIUS 3RA6 compact starters are a generation of special load feeders with the integrated functionality of a motor starter protector, contactor and electronic overload relay. In addition, various functions of optional mountable accessories (e.g. auxiliary switches, surge suppressors) are already integrated in the SIRIUS compact starter.



3RA6 compact starters with the integrated functionality of a motor starter protector, contactor and electronic overload relay

Applications

SIRIUS compact starters can be used wherever standard three-phase motors or resistive loads up to 32 A (approx. 15 kW/400 V) are directly started or switched.

The compact starters are not suitable for the protection of DC loads.

Approvals according to IEC, UL, CSA and CCC standards have been issued for the compact starters.

**More information**

Homepage, see www.siemens.com/sirius-compact-starters
Industry Mall, see www.siemens.com/product?3RA6
Online configurator, see www.siemens.com/sirius/configurators

Very high operational reliability

The high short-circuit breaking capacity and defined shutdown when the end of service life is reached mean that the SIRIUS compact starter achieves a very high level of operational reliability that would otherwise have only been possible with considerable additional outlay. This sets it apart from devices with similar functionality.

Safe disconnection

The auxiliary switches (NC contacts) of the 3RA6 compact starters are designed as mirror contacts. This enables their use for safe disconnection, e.g. EMERGENCY STOP up to SIL 1 (IEC 62061) or PL c (ISO 13849-1) or, if used in conjunction with an additional infeed contactor, up to SIL 3 (IEC 62061) or PL e (ISO 13849-1).

Communication link through AS-Interface

For communication link through AS-Interface there is an AS-i add-on module available in several versions for mounting instead of the control circuit terminals on the SIRIUS compact starter.

The design of the AS-i add-on module permits a group of up to 62 feeders with a total of four cables to be connected to the control system. This reduces wiring work considerably compared to the parallel wiring method.

Communication link through IO-Link

Up to four compact starters in IO-Link version (reversing and direct-on-line starters) can be connected together and conveniently linked to the IO-Link master through a standardized IO-Link connection.

The IO-Link connection enables a high density of information in the local range.

For details regarding the communication link using IO-Link, see page 2/88 onwards.

The diagnostics data of the process collected by the 3RA6 compact starter, e.g. short circuit, end of service life, limit position, etc., are not only indicated on the compact starter itself but also transmitted to the higher-level control system through IO-Link.

Thanks to the optionally available operator panel, which can be installed in the control cabinet door, it is easy to control the 3RA6 compact starters with IO-Link from the control cabinet door.

Permanent wiring/easy replacement

Using the SIRIUS infeed system for 3RA6 (see page 8/76), it is possible to carry out the wiring in advance without a compact starter having to be connected.

A compact starter is very easily replaced simply by pulling it out of the device without disconnecting the wiring.

Even with screw fixing or mounting on a DIN rail there is no need to disconnect any wiring (on account of the removable main and control circuit terminals) in order to replace a compact starter.

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## General data

Consistent solution from the infeed to the motor feeder

The SIRIUS feeder system for 3RA6 with integral PE bar is available as a user-friendly system for supplying summation current up to 100 A with a maximum conductor cross-section of 70 mm² and for direct connection of the motor cable without additional intermediate terminals.

Screw and spring-loaded terminals

The SIRIUS compact starters and the infeed system for 3RA6 are available with screw and spring-loaded terminals.

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals |
| | The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds. |

System configurator for engineering

A free system configurator is available to reduce further the amount of engineering work for selecting the required compact starters and matching infeed.

### *Use of load feeders in conjunction with IE3 and IE4 motors*

Note:

For the use of SIRIUS 3RA6 compact starters in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

### *Types of infeed for the 3RA6 fuseless compact starters*

On the whole four different infeed possibilities are available:

- Parallel wiring
- Use of 3-phase busbars (combination with SIRIUS motor starter protectors and SIRIUS contactors possible)
- 8US busbar adapters
- SIRIUS infeed system for 3RA6 (see page 8/76)

To comply with the clearance and creepage distances required according to UL 508, there are the following infeed possibilities:

| Type of infeed | Infeed terminal (according to UL 508, Type E) | Type |
|---|---|---|
| Parallel wiring | Terminal block for "Self-Protected Combination Motor Controller (Type E)" | **3RV2928-1H** |
| 3-phase busbars | 3-phase infeed terminal for constructing "Starters (Type E)", UL 508 | **3RV2925-5EB** |
| Infeed system for 3RA6 | Infeed on left, 50/70 mm², screw terminal with 3 sockets, outgoing terminal with screw/spring-loaded terminals incl. PE bar | **3RA6813-8AB** (screw terminals), **3RA6813-8AC** (spring-loaded terminals) |

### *SIRIUS 3RA6 compact starters*

SIRIUS 3RA6 compact starters are universal motor feeders according to IEC 60947-6-2. As control and protective switching devices (CPS) they can connect, convey and disconnect the thermal, dynamic and electrical loads from short-circuit currents up to $I_q$ = 53 kA, i.e. they are practically weld-free. They combine the functions of a motor starter protector, a contactor and an electronic overload relay in one enclosure. The versions available are the 45-mm-wide direct-on-line starters and the 90-mm-wide reversing starters.

The reversing starter version comes with not only an internal electrical interlock but also with a mechanical interlock to prevent simultaneous actuation of both directions of rotation.

The compact starters have isolating features in accordance with IEC 60947-2 and can be used as disconnector units (main control switch according to EN 60204 or VDE 0113). Isolation is effected by moving the handle into the "OFF" position; disconnection by means of the control contacts is not enough.

3RA6 fuseless compact starters are available in five current setting ranges. The 3RA61 and 3RA62 have two control voltage ranges (AC/DC), and the 3RA64 and 3RA65 have one control voltage range (DC):

| Current setting range | At 400 V AC for three-phase motors Standard output *P* | Rated control supply voltage for 3RA61, 3RA62 compact starters | Rated control supply voltage for 3RA64, 3RA65 compact starters for IO-Link |
|---|---|---|---|
| A | kW | V AC/DC | V DC |
| 0.1 ... 0.4 | 0.09 | 24 | 24 |
| 0.32 ... 1.25 | 0.37 | 110 ... 240 | |
| 1 ... 4 | 1.5 | | |
| 3 ... 12 | 5.5 | | |
| 8 ... 32 | 15 | | |

Notes:

The 3RA2 load feeders can be used for fuseless load feeders > 32 A up to 65 A. Load feeders in size S3 up to 100 A are available for customer assembly (see also page 8/5).

The SENTRON 3VL circuit breakers and the SIRIUS 3RT contactors can be used for fuseless load feeders > 100 A.

Operating conditions

The SIRIUS 3RA6 compact starters are suitable for use in any climate. They are intended for use in enclosed rooms in which no severe operating conditions (such as dust, caustic vapors, hazardous gases) prevail. Suitable covers must be provided for installation in dusty and damp locations.

The permissible ambient temperature during operation is -20 to +60 °C. The rated short-circuit current $I_{CS}$ according to IEC 60947-6-2 is 53 kA at 400 V.

Note:

The maximum permissible short-circuit currents of the device versions for the various line system configurations and voltages are available upon request from Technical Support: www.siemens.com/support-request

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Overload tripping times

The tripping time in the event of overload can be set on the device to normal starting conditions (CLASS 10) and to heavy starting conditions (CLASS 20). As the breaker mechanism still remains closed after an overload, resetting is possible by either local Manual RESET or Auto RESET[1)] after three minutes cooling time.

With Auto RESET, there is no need to open the control cabinet.

Diagnostics options

The compact starter provides the following diagnostics options:

- With LEDs
  - Connection to the control voltage
  - Position of the main contacts
- With mechanical display
  - Tripping due to overload
  - Tripping due to short circuit
  - Tripping due to malfunction (end of service life reached because of worn switching contacts or a worn switching mechanism or faults in the control electronics)

These states can also be evaluated in the higher-level control system:

- With parallel wiring using the integrated auxiliary and signaling switches of the compact starter
- With AS-Interface or IO-Link in even greater detail using the respective communications interface

Four complement versions for 3RA61 and 3RA62 compact starters

- For DIN-rail mounting or screw fixing:
  basic version including one pair of main circuit terminals and one pair of control circuit terminals
- For DIN-rail mounting or screw fixing when using the AS-i add-on module:
  without control circuit terminals because the AS-i add-on module is plugged on instead
- For use in the infeed system for 3RA6:
  without main circuit terminals because they are supplied with the infeed system and the expansion modules
- For use in the infeed system for 3RA6 and AS-i add-on module: without terminal complement (also for reordering when replacing the compact starter)

The control circuit terminals are always required by the compact starters for IO-Link; the main circuit terminals depend on the use of the infeed system.

1) The Auto RESET function is not available for versions 3RA6120-.B/.C with a rated current of 1.25 A and 3RA6250-.B/-.C with a rated current of 4 A. The reset can be alternatively carried out by disconnecting the supply voltage A1/A2 via the NC contacts 95/96 (overload signaling contact). The Auto RESET function is provided with this circuitry.

More components of the 3RA6

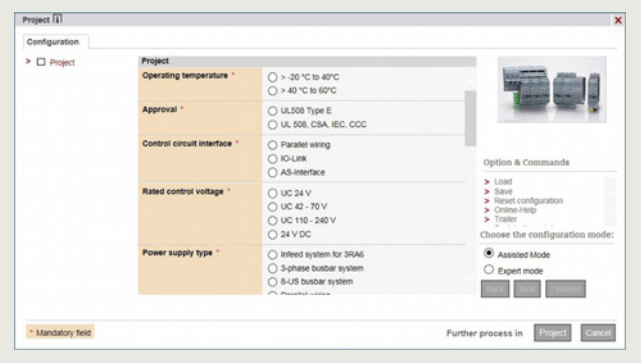
Apart from the control supply voltage, "Overload" (1 CO) and "Short circuit/Function fault" (1 NO) signaling contacts are already integrated into the 3RA61/3RA62 – and lockable via two 6-pole removable control circuit terminals. The 3RA61 has two auxiliary contacts (1 NO + 1 NC) for displaying the position of the main contacts. Unlike the 3RA61 direct-on-line starter, the 3RA62 reversing starter has one auxiliary contact (1 NO) per direction of rotation per main contact.

A slot for an optional auxiliary switch (either 2 NO, 2 NC or 1 NO + 1 NC) is available for the 3RA61 and 3RA64 direct-on-line starters. For the 3RA62 and 3RA65 reversing starters, two slots are available (auxiliary switches, see "Accessories", page 8/70).

Force-guided operation of the auxiliary contacts

Force-guided operation between individual auxiliary circuits exists for the compact starter in the version as a direct-on-line starter for parallel wiring (3RA61) between the auxiliary circuits of the NC contacts (NC 21-22) and the NO contacts (NO 13-14) in the basic unit.
In addition, the optional auxiliary switch offers force-guided contacts in the 3RA6913-1A version, each with one normally closed contact and one normally open contact.

***Configurator***




Configurator

Advantages:

- Simple usage – from individual compact starters or also with corresponding infeed system and AS-i connection
- In the final configuration, you will be presented with additional technical information such as CAD data and product data sheets as well as characteristic curves, operating instructions, manuals, etc.

See www.siemens.com/sirius/configurators

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## General data

***Article number scheme***

| Product versions | | Article number | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Compact starters** | | **3RA6** | □ | □ | □ | – | □ | □ | □ | □ | □ | |
| Product function | Direct-on-line starter | | **1** | **2** | **0** | | | | | | | For motor standard output 0.09 ... 15 kW[1] |
| | Reversing starter | | **2** | **5** | **0** | | | | | | | For motor standard output 0.09 ... 15 kW[1] |
| | Direct-on-line starter for IO-Link | | **4** | **0** | **0** | | | | | | | For motor standard output 0.09 ... 15 kW[1] |
| | Reversing starter for IO-Link | | **5** | **0** | **0** | | | | | | | For motor standard output 0.09 ... 15 kW[1] |
| | Infeed system | | **8** | | | | | | | | | |
| | Accessories | | **9** | | | | | | | | | |
| | • Auxiliary switches | | | **1** | □ | | | | | | | |
| | • Terminals | | | **2** | □ | | | | | | | |
| | • IO-Link accessories | | | **3** | □ | | | | | | | |
| | • Fixing elements | | | **4** | □ | | | | | | | |
| | • Control kit | | | **5** | □ | | | | | | | |
| Connection methods | No terminals | | | | | | **0** | | | | | |
| | Screw terminals | | | | | | **1** | | | | | |
| | Spring-loaded terminals | | | | | | **2** | | | | | |
| Setting range | 0.1 ... 0.4 A | | | | | | | **A** | | | | |
| | 0.32 ... 1.25 A | | | | | | | **B** | | | | |
| | 1 ... 4 A | | | | | | | **C** | | | | |
| | 3 ... 12 A | | | | | | | **D** | | | | |
| | 8 ... 32 A | | | | | | | **E** | | | | |
| Rated control supply voltage | 24 V DC | | | | | | | | **B** | **4** | | For direct-on-line/reversing starters for IO-Link |
| | 24 V AC/DC | | | | | | | | **B** | **3** | | For direct-on-line/reversing starters |
| | 110 ... 240 V AC/DC | | | | | | | | **P** | **3** | | For direct-on-line/reversing starters |
| Terminal complement versions | None | | | | | | | | | | **0** | Without main and control circuit terminals |
| | 1/1 | | | | | | | | | | **2** | With 1 pair of main circuit and 1 pair of control circuit terminals |
| | 0/1 | | | | | | | | | | **3** | Without main circuit terminals, with 1 pair of control circuit terminals |
| | 1/0 | | | | | | | | | | **4** | With 1 pair of main circuit terminals, without control circuit terminals |
| Special versions | | | | | | | | | | | | |
| Example | | **3RA6** | **1** | **2** | **0** | **–** | **0** | **A** | **B** | **3** | **0** | |

[1] Standard three-phase motor, basis 4-pole at 400 V AC; the actual starting and rated data of the motor to be protected must be considered when selecting the units.

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

***Product advantages***

The SIRIUS 3RA6 compact starters offer a number of benefits:

- Compact design saves space in the control cabinet
- Little planning and assembly work and far less wiring thanks to a single complete unit with one article number
- Low variance and therefore low stock levels, with two wide voltage ranges and five wide setting ranges for the rated current
- High plant availability through integrated functionalities such as prevention of main contact welding and disconnection at end of service life
- Enhanced productivity through automatic device RESET[1] in case of overload and differentiated detection of overload and short circuit
- Easy checking of the wiring and testing of the motor direction prior to startup thanks to optional control kits
- Quick replacement of devices thanks to removable terminals with spring-loaded and screw terminals in the main and control circuit
- Efficient power distribution through the related SIRIUS infeed system for 3RA6
- Direct connection of the motor feeder cable to the SIRIUS infeed system for 3RA6 thanks to integrated PE bar
- Connecting and looping through of incoming feeders up to a cross-section of 70 $mm^2$
- When using the infeed system for 3RA6, possibility of directly connecting the motor cable without intermediate terminals
- Integration in Totally Integrated Automation thanks to the optional connection to AS-Interface or IO-Link

[1] The Auto RESET function is not available for versions 3RA6120-.B/.C with a rated current of 1.25 A and 3RA6250-.B/-.C with a rated current of 4 A. The reset can be alternatively carried out by disconnecting the supply voltage A1/A2 via the NC contacts 95/96 (overload signaling contact). The Auto RESET function is provided with this circuitry.

The SIRIUS 3RA6 compact starters create the basis for high-availability and future-proof machine concepts.

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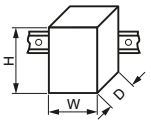
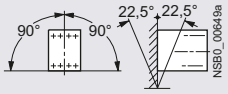
## Technical specifications

| More information | |
|---|---|
| Industry Mall, see www.siemens.com/product?3RA6<br>System Manual, see http://support.industry.siemens.com/cs/ww/en/view/27865747.<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16301/faq | Notes on security:<br>In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.<br>For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity. |

| Type | | | 3RA61 | 3RA62 | 3RA64 | 3RA65 |
|---|---|---|---|---|---|---|
| **Mechanics and environment** | | | | | | |
| **Mounting dimensions (W x H x D)**<br>• Screw terminals<br>• Spring-loaded terminals |  | mm<br>mm | 45 x 170 x 165<br>45 x 191 x 165 | 90 x 170 x 165<br>90 x 191 x 165 | 45 x 170 x 165<br>45 x 191 x 165 | 90 x 170 x 165<br>90 x 191 x 165 |
| **Depth from DIN rail** | | mm | 160 | | | |
| **Permissible ambient temperature**<br>• During operation (permissible operational current, see the following section "Electrical specifications")<br>• During storage<br>• During transport | | °C<br>°C<br>°C | -20 ... +70, restriction as from 60 depending on design<br>-55 ... +80<br>-55 ... +80 | | | |
| **Permissible mounting position** |  | | | | | |
| **Shock resistance** (sine-wave pulse) | | | $a$ = 60 m/s² = 6 $g$ with 10 ms; for every 3 shocks in all axes | | | |
| **Vibratory load** | | | $f$ = 4 ... 5.8 Hz; $d$ = 15 mm; $f$ = 5.8 ... 500 Hz; $a$ = 20 m/s²; 10 cycles | | | |
| **Degree of protection IP on the front** | According to IEC 60529 | | IP20 | | | |
| **Touch protection on the front** | According to IEC 60529 | | Finger-safe for vertical touching from the front | | | |
| **Installation altitude** | | m | Up to 2 000 above sea level without restriction | | | |
| **Relative air humidity** | | % | 10 ... 90 | | | |
| **Pollution degree** | | | 3 | | | |
| **Electrical specifications** | | | | | | |
| **Device standard** | | | IEC 60947-6-2 | | | |
| **Maximum rated operational voltage $U_e$** | | V<br>V | 690<br>400 at 3RA6250-.E... and 3RA6500-.E...<br>(Reversing starter 32 A versions) | | | |
| **Rated frequency** | | Hz | 50/60 | | | |
| **Rated insulation voltage $U_i$**<br>(pollution degree 3) | | V | 690 | | | |
| **Rated impulse withstand voltage $U_{imp}$** | | kV | 6 | | | |
| **Rated current $I_e$**[1]<br>and setting range for overload release | 0.1 ... 0.4 A<br>0.32 ... 1.25 A<br>1 ... 4 A<br>3 ... 12 A<br>8 ... 32 A | A<br>A<br>A<br>A<br>A | 0.4<br>1.25<br>4<br>12<br>32 | | | |
| **Permissible operational current of the compact starter**[2]<br>When several compact starters are mounted side-by-side in the infeed system for 3RA6 (for more details on the various design versions, see System Manual)<br>• For a control cabinet inside temperature of<br>• For a control cabinet inside temperature of<br>• For a control cabinet inside temperature of | <br><br>+40 °C<br>+60 °C<br>+70 °C | <br><br>%<br>%<br>% | <br><br>100<br>80<br>60 | | | |
| **Trip class (CLASS)** | According to IEC 60947-4-1, EN 60947-4-1 (VDE 0660 Part 102) | | 10/20 | | | |
| **Overload function**<br>Ratio of lower to upper current mark | | | 1:4 | | | |
| **Rated service short-circuit breaking capacity $I_{CS}$ at 50/60 Hz, 400 V AC** | | kA | 53 | | | |
| **Rated service short-circuit breaking capacity $I_{CSIT}$ at 50/60 Hz 400/690 V AC in IT systems** | | kA | 1.5 | | | |

[1] For the use of 3RA6 compact starters in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

[2] Details about installation conditions and the use of the compact starters, and particularly about the derating of the rated current, can be found in the System Manual.

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## General data

| Type | | | 3RA61 | 3RA62 | 3RA64 | 3RA65 |
|---|---|---|---|---|---|---|
| **Electrical specifications** (continued) | | | | | | |
| **Power loss $P_{v\ max}$ of all main conducting paths** | 0.4 A | mW | 10 | | | |
| Dependent on rated current $I_e$ | 1.25 A | mW | 100 | | | |
| (upper setting range) | 4 A | W | 1 | | | |
| | 12 A | W | 1.8 | | | |
| | 32 A | W | 5.4 | | | |
| **Max. switching frequency** | AC-41 | 1/h | 750 | | | |
| | AC-43 | 1/h | 250 | | | |
| | AC-44 | 1/h | 15 | | | |
| **No-load switching frequency** | | 1/h | 3 600 | | 3 600, depending on the IO-Link communication time | |
| **Isolating features of the compact starter** | According to IEC 60947-3 | | ✓ Isolation is assured only by moving the handle into the "OFF" position. | | | |
| **Main and EMERGENCY OFF switch characteristics of the compact starter and accessories** | According to IEC 60204 | | ✓ | | | |
| **Protective separation** | According to IEC 60947-2 | | | | | |
| **Control circuit to auxiliary circuit** | | | | | | |
| • Horizontal DIN rail | | V | Up to 400 | | | |
| • Other mounting position | | V | Up to 250 | | | |
| **Auxiliary circuit to auxiliary circuit** | | | | | | |
| • Horizontal DIN rail | | V | Up to 400 | | | |
| • Other mounting position | | V | Up to 250 | | | |
| **Main circuit to auxiliary circuit** | | | | | | |
| • Any mounting position | | V | Up to 400 | | | |
| **EMC interference immunity** | According to IEC 60947-1 | | Corresponds to degree of severity 3 | | | |
| **Conducted interference** | BURST according to IEC 61000-4-4 | | | | | |
| • In the main circuit | | kV | 4 | | 4 | |
| • In the auxiliary circuit | | kV | 3 | | 2 | |
| **Conducted interference** | SURGE according to IEC 61000-4-5 | | | | | |
| • In the main circuit | | | | | | |
| - Conductor - Ground | | kV | 4 | | 2 | |
| - Conductor - Conductor | | kV | 2 | | 1 | |
| • In the auxiliary circuit | | | | | | |
| - Conductor - Ground | | kV | 2 | | 0.5[1] | |
| - Conductor - Conductor | | kV | 1 | | 0.5[1] | |
| **Auxiliary switches** | | | | | | |
| • Integrated | | | | | | |
| - Position of the main contacts | | | 1 NO + 1 NC | 2 NO | 1 NO + 1 NC | 2 NO |
| - Overload/short circuit and malfunction signal | | | 1 CO/1 NO | | | |
| • Expandable | | | | | | |
| - Position of the main contacts | | | 2 NO, 2 NC, 1 NO, 1 NC | | | |
| **Surge suppressors** | | | Integrated (varistor) | | | |
| **Electromagnetic operating mechanisms** | | | | | | |
| **Control voltage** | | V | 24 AC/DC | | 24 DC | |
| | | V | 110 ... 240 AC/DC | | -- | |
| **Frequency** | At AC | Hz | 50/60 (± 5%) | | | |
| **Operating range** | | | 0.7 ... 1.25 $U_s$ | | 0.85 ... 1.2 $U_s$ | |
| **No-load switching frequency** | | 1/h | 3 600 | | | |
| **Line protection** | At 10 kA | mm² | 2.5 | | | |
| | At 50 kA | mm² | 4 | | | |
| **Shock resistance** | | | | | | |
| • Breaker mechanism OFF | | *g* | 25 | | | |
| • Breaker mechanism ON | | *g* | 15 | | | |
| **Normal switching duty** | | | | | | |
| **Making capacity** | | | 12 x $I_n$ | | | |
| **Breaking capacity** | | | 10 x $I_n$ | | | |
| **Switching capacity dependent on rated current** | Up to 12 A | kW | 5.5 | | | |
| | Up to 32 A | kW | 15 | | | |
| **Endurance in operating cycles** | | | | | | |
| • Electrical endurance | At $I_e$ = 0.9 x $I_n$ and 400 V | | 3 ... 10 000 000 | 2 x 3 ... 10 000 000 | 3 000 000 | 2 x 1 500 000 |

✓ Function available

1) To maintain maximum interference immunity in a harsh electromagnetic environment, additional overvoltage protection should be provided in the control circuit. The 5SD7432-4 plug-in surge arrester with remote signaling, for instance, is suitable, see Catalog LV 10.

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| Type | | 3RA6120-.☐B3., 3RA6250-.☐B3.<br>☐ = A, B, C or D<br>Rated operational current ≤ 12 A | | 3RA6120-.EB3., 3RA6250-.EB3.<br>Rated operational current 32 A | |
|---|---|---|---|---|---|
| **Rated control supply voltage** | **V** | **24 AC** | **24 DC** | **24 AC** | **24 DC** |
| **Inrush peak current** | A | 0.59 | 0.47 | 0.59 | 0.47 |
| **Hold current** | A | 0.13 | 0.12 | 0.17 | 0.14 |
| **Closed** | W | 2.8 | 2.9 | 3.5 | 3.1 |
| **Operating times, typical** | | | | | |
| • On | ms | < 160 | < 140 | < 160 | < 140 |
| • Off | ms | < 35 | < 35 | < 30 | < 30 |

| Type | | 3RA6120-.☐P3., 3RA6250-.☐P3.<br>☐ = A, B, C or D<br>Rated operational current ≤ 12 A | | | | 3RA6120-.EP3., 3RA6250-.EP3.<br>Rated operational current 32 A | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Rated control supply voltage** | **V** | **110 AC** | **240 AC** | **110 DC** | **240 DC** | **110 AC** | **240 AC** | **110 DC** | **240 DC** |
| **Inrush peak current** | A | 0.24 | 0.40 | 0.17 | 0.29 | 0.24 | 0.40 | 0.17 | 0.29 |
| **Hold current** | A | 0.06 | 0.08 | 0.03 | 0.02 | 0.06 | 0.07 | 0.04 | 0.03 |
| **Closed** | W | 3.8 | 6 | 3.1 | 5.1 | 3.7 | 5.2 | 3.4 | 5.8 |
| **Operating times, typical** | | | | | | | | | |
| • On | ms | < 160 | < 140 | < 150 | < 140 | < 160 | < 140 | < 150 | < 140 |
| • Off | ms | < 50 | < 80 | < 50 | < 70 | < 40 | < 60 | < 40 | < 60 |

| Type | | 3RA6400-.☐B4., 3RA6500-.☐B4.<br>☐ = A, B, C or D<br>Rated operational current ≤ 12 A | 3RA6400-.EB4., 3RA6500-.EB4.<br>Rated operational current 32 A |
|---|---|---|---|
| **Rated control supply voltage** | **V** | **24 DC** | **24 DC** |
| **Inrush peak current** | A | 0.39 | 0.53 |
| **Hold current** | A | 0.13 | 0.15 |
| **Closed** | W | 2.9 | 3.4 |
| **Operating times, typical**[1)] | | | |
| • On | ms | < 140 | < 140 |
| • Off | ms | < 35 | < 30 |

1) Plus IO-Link communication.

| Type | | | | 3RA6 |
|---|---|---|---|---|
| **Control circuit** | | | | |
| **Rated operational voltage** | | | | |
| • External auxiliary switch | | | V | 400/690 |
| • Internal auxiliary switch | | | V | 400/690 |
| • Short-circuit signaling switch | | | V | 400 |
| • Overload signaling switch | | | V | 400 |
| **Switching capacity** | | | | |
| • External auxiliary switch | **AC-15** | | | |
| | • Up to $U_e$ = 230 V | | A | 6 |
| | • Up to $U_e$ = 400 V | | A | 3 |
| | • Up to $U_e$ = 289/500 V | | A | 2 |
| | • Up to $U_e$ = 400/690 V | | A | 1 |
| | **DC-13** | | | |
| | • Up to $U_e$ = 24 V | | A | 6 |
| | • Up to $U_e$ = 60 V | | A | 0.9 |
| | • Up to $U_e$ = 125 V | | A | 0.55 |
| | • Up to $U_e$ = 250 V | | A | 0.27 |
| • Internal auxiliary switch | **AC-15** | | | |
| | • Up to $U_e$ = 230 V | | A | 6 |
| | • Up to $U_e$ = 400 V | | A | 3 |
| | • Up to $U_e$ = 289/500 V | | A | 2 |
| | • Up to $U_e$ = 400/690 V | | A | 1 |
| | **DC-13** | | | |
| | • Up to $U_e$ = 24 V | | A | 10 |
| | • Up to $U_e$ = 60 V | | A | 2 |
| | • Up to $U_e$ = 125 V | | A | 1 |
| | • Up to $U_e$ = 250 V | | A | 0.27 |
| | • Up to $U_e$ = 480 V | | A | 0.1 |
| • Signaling switch | **AC-15** | | | |
| | • Up to $U_e$ = 230 V | | A | 3 |
| | • Up to $U_e$ = 400 V | | A | 1 |
| | **DC-13** | | | |
| | • Up to $U_e$ = 24 V | | A | 2 |
| | • Up to $U_e$ = 250 V | | A | 0.11 |

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## General data

| Type | | | 3RA61, 3RA62 | 3RA64, 3RA65 |
|---|---|---|---|---|
| **External auxiliary switches, internal auxiliary switches** | | | | |
| **Endurance in operating cycles** | | | | |
| • Mechanical endurance | | | 10 000 000 | 3 000 000 |
| • Electrical endurance | **AC-15, 230 V** | | | |
| | • Up to 6 A | | 200 000 | |
| | • Up to 3 A | | 500 000 | |
| | • Up to 1 A | | 2 000 000 | |
| | • Up to 0.3 A | | 10 000 000 | |
| | **DC-13, 24 V** | | | |
| | • Up to 6 A | | 30 000 | |
| | • Up to 3 A | | 100 000 | |
| | • Up to 0.5 A | | 2 000 000 | |
| | • Up to 0.2 A | | 10 000 000 | |
| | **DC-13, 110 V** | | | |
| | • Up to 1 A | | 40 000 | |
| | • Up to 0.55 A | | 100 000 | |
| | • Up to 0.3 A | | 300 000 | |
| | • Up to 0.1 A | | 2 000 000 | |
| | • Up to 0.04 A | | 10 000 000 | |
| | **DC-13, 220 V** | | | |
| | • Up to 0.3 A | | 110 000 | |
| | • Up to 0.1 A | | 650 000 | |
| | • Up to 0.05 A | | 2 000 000 | |
| | • Up to 0.018 A | | 10 000 000 | |
| **Contact reliability** | At 17 V and 5 mA | Operating cycles | 1 incorrect switching operation per 100 000 000 | |
| **Short-circuit protection** | | | | |
| • Short-circuit current $I_K \leq 1.1$ kA | Fuse links, operational class gG<br>- NEOZED type 5SE<br>- DIAZED type 5SB<br>- LV HRC type 3NA | A | 10 | |
| • Short-circuit current $I_K < 400$ A | Miniature circuit breaker up to 230 V with C characteristic | A | 10 | |
| **Signaling switches** | | | | |
| **Endurance in operating cycles** | | | | |
| • Mechanical endurance | | | 20 000 | |
| • Electrical endurance AC-15 | At 230 V and 3 A | | 6 050 | |
| **Contact reliability** | At 17 V and 5 mA | Operating cycles | 1 incorrect switching operation per 100 000 000 | |
| **Short-circuit protection** | | | | |
| • Short-circuit current $I_K \leq 1.1$ kA | Fuse links, operational class gG<br>- NEOZED type 5SE<br>- DIAZED type 5SB<br>- LV HRC type 3NA | A | 6 | |
| • Short-circuit current $I_K < 400$ A | Miniature circuit breaker up to 230 V with C characteristic | A | 6 | |
| **Overload** (short-circuit current $I_K \leq 1.1$ kA) | Fuse links, operational class gG<br>- NEOZED type 5SE<br>- DIAZED type 5SB<br>- LV HRC type 3NA | A | 4 | |

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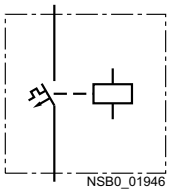
## Selection and ordering data

3RA6120-1CB32

3RA6120-2EB32

**Direct-on-line starting**




Width 45 mm

Rated short-circuit current $I_{CS}$ = 53 kA at 400 V

A set of 3RA6940-0A adapters is required for screw fixing.

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42F

| Standard three-phase motor 4-pole at 400 V AC[1] Standard output *P* | Setting range for electronic overload release | Instantaneous electronic release | Article No. | Price per PU | Article No. | Price per PU |
|---|---|---|---|---|---|---|
| kW | A | A | | | | |
| **For use in the infeed system for 3RA6 and with AS-i add-on module or as a replacement device,** without main and control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6120-0A□30** | | **--** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6120-0B□30** | | **--** | |
| 1.5 | 1 ... 4 | 56 | **3RA6120-0C□30** | | **--** | |
| 5.5 | 3 ... 12 | 168 | **3RA6120-0D□30** | | **--** | |
| 15 | 8 ... 32 | 448 | **3RA6120-0E□30** | | **--** | |
| | | | **Screw terminals** | | **Spring-loaded terminals** | |
| **For DIN-rail mounting or screw fixing,** with 1 pair of main circuit terminals and 1 pair of control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6120-1A□32** | | **3RA6120-2A□32** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6120-1B□32** | | **3RA6120-2B□32** | |
| 1.5 | 1 ... 4 | 56 | **3RA6120-1C□32** | | **3RA6120-2C□32** | |
| 5.5 | 3 ... 12 | 168 | **3RA6120-1D□32** | | **3RA6120-2D□32** | |
| 15 | 8 ... 32 | 448 | **3RA6120-1E□32** | | **3RA6120-2E□32** | |
| **For use in the infeed system for 3RA6,** without main circuit terminals, with 1 pair of control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6120-1A□33** | | **3RA6120-2A□33** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6120-1B□33** | | **3RA6120-2B□33** | |
| 1.5 | 1 ... 4 | 56 | **3RA6120-1C□33** | | **3RA6120-2C□33** | |
| 5.5 | 3 ... 12 | 168 | **3RA6120-1D□33** | | **3RA6120-2D□33** | |
| 15 | 8 ... 32 | 448 | **3RA6120-1E□33** | | **3RA6120-2E□33** | |
| **Article No. supplements for rated control supply voltage** | | | | | | |
| • 24 V AC/DC | | | **B** | | **B** | |
| • 110 ... 240 V AC/DC | | | **P** | | **P** | |
| **For DIN-rail mounting or screw fixing, for use with AS-i add-on module** with 1 pair of main circuit terminals, without control circuit terminals Rated control supply voltage 24 V AC/DC | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6120-1AB34** | | **3RA6120-2AB34** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6120-1BB34** | | **3RA6120-2BB34** | |
| 1.5 | 1 ... 4 | 56 | **3RA6120-1CB34** | | **3RA6120-2CB34** | |
| 5.5 | 3 ... 12 | 168 | **3RA6120-1DB34** | | **3RA6120-2DB34** | |
| 15 | 8 ... 32 | 448 | **3RA6120-1EB34** | | **3RA6120-2EB34** | |

[1] The actual starting and rated data of the motor to be protected must be considered when selecting the units.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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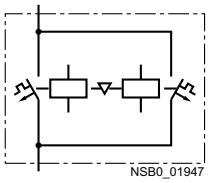
## Selection and ordering data

3RA6250-1CP32

3RA6250-2DP32

**Reversing operation**




Width 90 mm

Rated short-circuit current $I_{CS}$ = 53 kA at 400 V

Two sets of 3RA6940-0A adapters are required for screw fixing.

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42F

| Standard three-phase motor 4-pole at 400 V AC[1] Standard output *P* | Setting range for electronic overload release | Instantaneous electronic release | Article No. | Price per PU | Article No. | Price per PU |
|---|---|---|---|---|---|---|
| kW | A | A | | | | |
| **For use in the infeed system for 3RA6, and with AS-i add-on module or as a replacement device,** without main and control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6250-0A□30** | | -- | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6250-0B□30** | | -- | |
| 1.5 | 1 ... 4 | 56 | **3RA6250-0C□30** | | -- | |
| 5.5 | 3 ... 12 | 168 | **3RA6250-0D□30** | | -- | |
| 15 | 8 ... 32 | 448 | **3RA6250-0E□30** | | -- | |
| | | | **Screw terminals** | | **Spring-loaded terminals** | |
| **For DIN-rail mounting or screw fixing,** with 1 pair of main circuit terminals and 1 pair of control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6250-1A□32** | | **3RA6250-2A□32** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6250-1B□32** | | **3RA6250-2B□32** | |
| 1.5 | 1 ... 4 | 56 | **3RA6250-1C□32** | | **3RA6250-2C□32** | |
| 5.5 | 3 ... 12 | 168 | **3RA6250-1D□32** | | **3RA6250-2D□32** | |
| 15 | 8 ... 32 | 448 | **3RA6250-1E□32** | | **3RA6250-2E□32** | |
| **For use in the infeed system for 3RA6,** without main circuit terminals, with 1 pair of control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6250-1A□33** | | **3RA6250-2A□33** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6250-1B□33** | | **3RA6250-2B□33** | |
| 1.5 | 1 ... 4 | 56 | **3RA6250-1C□33** | | **3RA6250-2C□33** | |
| 5.5 | 3 ... 12 | 168 | **3RA6250-1D□33** | | **3RA6250-2D□33** | |
| 15 | 8 ... 32 | 448 | **3RA6250-1E□33** | | **3RA6250-2E□33** | |
| **Article No. supplements for rated control supply voltage** | | | | | | |
| • 24 V AC/DC | | | **B** | | **B** | |
| • 110 ... 240 V AC/DC | | | **P** | | **P** | |
| **For DIN-rail mounting or screw fixing, for use with AS-i add-on module** with 1 pair of main circuit terminals, without control circuit terminals Rated control supply voltage 24 V AC/DC | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6250-1AB34** | | **3RA6250-2AB34** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6250-1BB34** | | **3RA6250-2BB34** | |
| 1.5 | 1 ... 4 | 56 | **3RA6250-1CB34** | | **3RA6250-2CB34** | |
| 5.5 | 3 ... 12 | 168 | **3RA6250-1DB34** | | **3RA6250-2DB34** | |
| 15 | 8 ... 32 | 448 | **3RA6250-1EB34** | | **3RA6250-2EB34** | |

[1] The actual starting and rated data of the motor to be protected must be considered when selecting the units.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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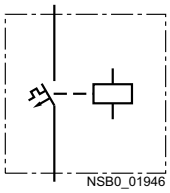
## Selection and ordering data

3RA64 with 3RA6911-1A auxiliary switch

**Direct-on-line starting**




***Rated control supply voltage 24 V DC***

Width 45 mm

Rated short-circuit current $I_{CS}$ = 53 kA at 400 V

A set of 3RA6940-0A adapters is required for screw fixing.

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42F

| Standard three-phase motor 4-pole at 400 V AC[1) ] Standard output *P* | Setting range for electronic overload release | Instantaneous electronic release | Article No. | Price per PU | Article No. | Price per PU |
|---|---|---|---|---|---|---|
| | | | **Screw terminals** | | **Spring-loaded terminals** | |
| kW | A | A | | | | |
| **For DIN-rail mounting or screw fixing,** with 1 pair of main circuit terminals and 1 pair of control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6400-1AB42** | | **3RA6400-2AB42** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6400-1BB42** | | **3RA6400-2BB42** | |
| 1.5 | 1 ... 4 | 56 | **3RA6400-1CB42** | | **3RA6400-2CB42** | |
| 5.5 | 3 ... 12 | 168 | **3RA6400-1DB42** | | **3RA6400-2DB42** | |
| 15 | 8 ... 32 | 448 | **3RA6400-1EB42** | | **3RA6400-2EB42** | |
| **For use in the infeed system for 3RA6,** without main circuit terminals, with 1 pair of control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6400-1AB43** | | **3RA6400-2AB43** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6400-1BB43** | | **3RA6400-2BB43** | |
| 1.5 | 1 ... 4 | 56 | **3RA6400-1CB43** | | **3RA6400-2CB43** | |
| 5.5 | 3 ... 12 | 168 | **3RA6400-1DB43** | | **3RA6400-2DB43** | |
| 15 | 8 ... 32 | 448 | **3RA6400-1EB43** | | **3RA6400-2EB43** | |

1) The actual starting and rated data of the motor to be protected must be considered when selecting the units.

8

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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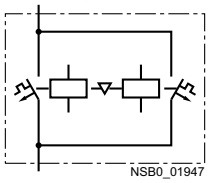
## Selection and ordering data

3RA65 with 3RA6911-1A auxiliary switch

**Reversing operation**




***Rated control supply voltage 24 V DC***

Width 90 mm

Rated short-circuit current $I_{CS}$ = 53 kA at 400 V

Two sets of 3RA6940-0A adapters are required for screw fixing.

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 42F

| Standard three-phase motor 4-pole at 400 V AC[1] Standard output *P* | Setting range for electronic overload release | Instantaneous electronic release | Article No. | Price per PU | Article No. | Price per PU |
|---|---|---|---|---|---|---|
| | | | **Screw terminals** | | **Spring-loaded terminals** | |
| kW | A | A | | | | |
| **For DIN-rail mounting or screw fixing,** with 1 pair of main circuit terminals and 1 pair of control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6500-1AB42** | | **3RA6500-2AB42** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6500-1BB42** | | **3RA6500-2BB42** | |
| 1.5 | 1 ... 4 | 56 | **3RA6500-1CB42** | | **3RA6500-2CB42** | |
| 5.5 | 3 ... 12 | 168 | **3RA6500-1DB42** | | **3RA6500-2DB42** | |
| 15 | 8 ... 32 | 448 | **3RA6500-1EB42** | | **3RA6500-2EB42** | |
| **For use in the infeed system for 3RA6,** without main circuit terminals, with 1 pair of control circuit terminals | | | | | | |
| 0.09 | 0.1 ... 0.4 | 56 | **3RA6500-1AB43** | | **3RA6500-2AB43** | |
| 0.37 | 0.32 ... 1.25 | 56 | **3RA6500-1BB43** | | **3RA6500-2BB43** | |
| 1.5 | 1 ... 4 | 56 | **3RA6500-1CB43** | | **3RA6500-2CB43** | |
| 5.5 | 3 ... 12 | 168 | **3RA6500-1DB43** | | **3RA6500-2DB43** | |
| 15 | 8 ... 32 | 448 | **3RA6500-1EB43** | | **3RA6500-2EB43** | |

[1] The actual starting and rated data of the motor to be protected must be considered when selecting the units.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

### *Accessories for SIRIUS 3RA6 compact starters*

The following accessories are available specially for the 3RA6 compact starters:

- Infeed system for 3RA6, see page 8/76 onwards
- For AS-i add-on modules, see "Add-on modules for AS-Interface", page 8/74 onwards
- External auxiliary switches: Snap-on auxiliary switch as versions 2 NO, 2 NC and 1 NO + 1 NC with screw or spring-loaded terminals; the contacts of the auxiliary switch open and close jointly with the main contacts of the compact starter. The NC contacts are designed as mirror contacts.
- Control kit: Aid for manually closing the main contacts in order to check the wiring and motor direction under conditions of short-circuit protection
- Adapter for screw fixing the compact starter, including push-in lugs
- Main circuit terminal: Available with screw and spring-loaded terminals
- Main circuit terminal mixed connection method:
  With the main circuit terminal mixed connection method, it is also possible to switch from screw connection on the line side to spring-loaded terminals on the outgoing side in the main circuit.
  This means for example that several compact starters can be mounted side by side and be cost-efficiently connected using the 3-phase busbars on the infeed side. The motors are then connected directly by the quick and reliably contacting spring-loaded terminals.

### *Accessories for UL applications*

The terminal block for "Self-Protected Combination Motor Controller (Type E)" is available for complying with the clearance and creepage distances required according to UL 508.

### *Accessories for infeed using 3-phase busbar systems*

The 3RV1915-1.B 3-phase busbars can be used as an easy, time-saving and clearly arranged means of feeding SIRIUS 3RA6 compact starters with screw terminals. Motor starter protector sizes S00 and S0 can also be integrated.

The busbars are suitable for between two and five devices. However, any kind of extension up to a maximum summation current of 63 A is possible by clamping the tags of an additional busbar (rotated by 180°) underneath the terminals of the respective last circuit breaker.

Motor starter protectors S00 and S0 of the 3RV2 series can be combined in any way. The motor starter protectors are supplied by appropriate infeed terminals. Special infeed terminals are required for constructing "Starters (Type E)" according to UL/CSA.

The 3-phase busbar systems have touch protection but empty connection tags must be fitted with covers. They are designed for any short-circuit stress which can occur at the output side of connected SIRIUS 3RA6 compact starters or motor starter protectors.

### *Busbar adapters for 60 mm systems*

The compact starters are mounted directly with the aid of busbar adapters on busbar systems with 60 mm center-to-center clearance in order to save space and to reduce infeed times and costs. These feeders are suitable for copper busbars with a width from 12 to 30 mm. The busbars can be 4 to 5 mm or 10 mm thick.

The 8US busbar system can be loaded with a maximum summation current of 630 A.

The "reversing starter" version requires a device holder alongside the busbar adapter for lateral mounting.

The compact starters are snapped onto the adapter and connected on the line side. This prepared unit is then plugged directly onto the busbar system, and is thus connected both mechanically and electrically at the same time.

For further accessories, such as incoming and outgoing terminals, flat copper profiles etc., see Catalog LV 10.

### *Accessories for SIRIUS 3RA6 compact starters in IO-Link version*

The following accessories are available specially for the 3RA64, 3RA65 compact starters:

- Additional connecting cables for side-by-side mounting of up to four compact starters
- Operator panel for on-site control and diagnostics of up to four compact starters coupled to each other

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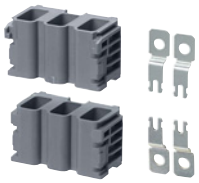
## Accessories

### Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Accessories specially for 3RA6 compact starters** | | | | | |
| 3RA6950-0A<br>**Control kit**<br>For mechanical actuation of the compact starter | **3RA6950-0A** | | 1 | 1 unit | 42F |
|  3RA6940-0A<br>**Adapters for screw fixing the compact starter**<br>(set including push-in lugs)<br>Direct-on-line starters require one set, reversing starters two sets. | **3RA6940-0A** | | 1 | 1 unit | 42F |
| | **Screw terminals** | | | | |
| 3RA6911-1A<br>**Auxiliary switches for compact starters** | | | | | |
| • 2 NO | **3RA6911-1A** | | 1 | 1 unit | 42F |
| • 2 NC | **3RA6912-1A** | | 1 | 1 unit | 42F |
| • 1 NO + 1 NC (these auxiliary contacts are force-guided) | **3RA6913-1A** | | 1 | 1 unit | 42F |
| 3RA6920-1A<br>**Main circuit terminals**<br>(line side and outgoing side) | **3RA6920-1A** | | 1 | 1 unit | 42F |
| 3RA6920-1B<br>**Control circuit terminals**<br>(1 set comprising 2 terminals) | | | | | |
| • For 3RA61 | **3RA6920-1B** | | 1 | 1 unit | 42F |
| • For 3RA62 | **3RA6920-1C** | | 1 | 1 unit | 42F |
| | **Spring-loaded terminals** | | | | |
| 3RA6911-2A<br>**Auxiliary switches for compact starters** | | | | | |
| • 2 NO | **3RA6911-2A** | | 1 | 1 unit | 42F |
| • 2 NC | **3RA6912-2A** | | 1 | 1 unit | 42F |
| • 1 NO + 1 NC (these auxiliary contacts are force-guided) | **3RA6913-2A** | | 1 | 1 unit | 42F |
| 3RA6920-2A<br>**Main circuit terminals**<br>(line side and outgoing side) | **3RA6920-2A** | | 1 | 1 unit | 42F |
| 3RA6920-2B<br>**Control circuit terminals**<br>(1 set comprising 2 terminals) | | | | | |
| • For 3RA61 | **3RA6920-2B** | | 1 | 1 unit | 42F |
| • For 3RA62 | **3RA6920-2C** | | 1 | 1 unit | 42F |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Accessories specially for 3RA6 compact starters** (continued) | | | | | |
| 3RA6920-3A<br>**Main circuit terminals, mixed connection method**<br>1 set comprises:<br>• 1 joint block on the line side with screw terminals<br>• 1 joint block on the outgoing side with spring-loaded terminals | **3RA6920-3A** | | 1 | 1 unit | 42F |

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Accessories specially for 3RA64, 3RA65 compact starters for IO-Link** | | | | | |
| 3RA6931-0A<br>**Additional connecting cables (flat)** for side-by-side mounting of up to 4 compact starters | | | | | |
| • 10-pole | | | | | |
| - 8 mm[1] | **3RA6932-0A** | | 1 | 5 units | 42F |
| - 200 mm[1] | **3RA6933-0B** | | 1 | 5 units | 42F |
| • 14-pole | | | | | |
| - 8 mm[2] | **3RA6931-0A** | | 1 | 5 units | 42F |
| - 200 mm | **3RA6933-0C** | | 1 | 5 units | 42F |
| 3RA6935-0A<br>**Operator panels (set)**<br>• 1 operator panel<br>• 1 enabling module<br>• 1 interface cover<br>• 1 fixing terminal | **3RA6935-0A** | | 1 | 1 unit | 42F |
| **Enabling modules (replacement)** | **3RA6936-0A** | | 1 | 1 unit | 42F |
| **Interface covers (replacement)** | **3RA6936-0B** | | 1 | 5 units | 42F |
| **Connecting cables (round)**<br>For connecting the operator panel<br>10-pole, 2 000 mm | **3RA6933-0A** | | 1 | 1 unit | 42F |

[1] 10-pole connecting cables are required for EMERGENCY OFF group concepts.

[2] Is included in the scope of supply of the SIRIUS 3RA6 compact starter in IO-Link version.

Matching IO-Link masters, see page 2/98 onwards.

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Terminals for "Self-Protected Combination Motor Controllers (Type E)" according to UL 508 for infeed through parallel wiring with compact starters** | | | | | |
| 3RV2928-1H<br>**Terminal blocks Type E**<br>For extended clearance and creepage distances (1 and 2 inch)<br>Note:<br>UL 508 demands 1-inch clearance and 2-inch creepage distance at line side for "Combination motor controller (Type E)". Terminal blocks are not required for use according to CSA. These terminal blocks cannot be used in combination with 3RV19.5 3-phase busbars. | **3RV2928-1H** | | 1 | 1 unit | 41E |

8

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## Accessories

### 3-phase busbars for infeed with 3RA6

| Number of compact starters and motor starter protectors<br>Without lateral accessories | Modular spacing | Rated current $I_n$ at 690 V | For motor starter protectors | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | mm | A | Size | | | | | |
| For feeding several compact starters and/or motor starter protectors with screw terminals, mounted side-by-side on DIN rails, insulated, with touch protection. | | | | | | | | |
| 2 | 45 | 63 | S00, S0[1] | **3RV1915-1AB** | | 1 | 1 unit | 41E |
| 3 | 45 | 63 | S00, S0[1] | **3RV1915-1BB** | | 1 | 1 unit | 41E |
| 4 | 45 | 63 | S00, S0[1] | **3RV1915-1CB** | | 1 | 1 unit | 41E |
| 5 | 45 | 63 | S00, S0[1] | **3RV1915-1DB** | | 1 | 1 unit | 41E |

3RV1915-1AB

3RV1915-1BB

3RV1915-1CB

3RV1915-1DB

[1] Not suitable for 3RV21 motor starter protectors for motor protection with overload relay function and for 3RV27 and 3RV28 circuit breakers according to UL 489/CSA C22.2 No. 5.

### Covers for connection tags of the 3-phase busbars

| Version | Modular spacing | For motor starter protectors | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | mm | Size | | | | | |
| Touch protection for empty positions | -- | S00, S0 | **3RV1915-6AB** | | 1 | 10 units | 41E |

3RV1915-6AB

### 3-phase infeed terminals for 3-phase busbars according to IEC and for constructing "Starters (Type E)" according to UL 508

| Conductor cross-section: Solid or stranded | Conductor cross-section: Finely stranded with end sleeve | Conductor cross-section: AWG cables, solid or stranded | Tightening torque | For compact starters and motor starter protectors | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $mm^2$ | $mm^2$ | AWG | Nm | Size | | | | | |
| **Connection from top** | | | | | | | | | |
| 2.5 … 25 | 2.5 … 16 | 10 ... 4 | 3 ... 4 | S00, S0 | **3RV2925-5EB** | | 1 | 1 unit | 41E |

3RV2925-5EB

### 3-phase infeed terminals for 3-phase busbars

| Conductor cross-section: Solid or stranded | Conductor cross-section: Finely stranded with end sleeve | Conductor cross-section: AWG cables, solid or stranded | Tightening torque | For compact starters and motor starter protectors | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| $mm^2$ | $mm^2$ | AWG | Nm | Size | | | | | |
| **Connection from below**[1] | | | | | | | | | |
| 2.5 … 25 | 2.5 … 16 | 10 ... 4 | Input: 4; Output: 2 ... 2.5 | S00, S0 | **3RV2915-5B** | | 1 | 1 unit | 41E |

3RV2915-5B

[1] This terminal is connected in place of a compact starter, please take the space requirement (45 mm) into account.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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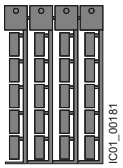
| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Busbar adapters for 60 mm systems** | | | | | | |
| 8US1211-1NS10 | For copper busbars according to DIN 46433<br>Width: 12 ... 30 mm<br>Thickness: 4 ... 5 mm or 10 mm | **8US1211-1NS10** | | 1 | 1 unit | 14O |
| **Device holders for lateral mounting alongside the busbar adapter for 60 mm systems** | | | | | | |
| 8US1250-1AA10 | Required in addition to the busbar adapter for mounting a reversing starter | **8US1250-1AA10** | | 1 | 1 unit | 14O |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdriver**<br>For all SIRIUS devices with spring-loaded terminals<br>Length, approx. 200 mm,<br>3.0 mm x 0.5 mm,<br>titanium gray/black,<br>partially insulated | **Spring-loaded terminals**<br>**3RA2908-1A** | | 1 | 1 unit | 41B |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1]<br>For SIRIUS devices<br>20 mm x 7 mm,<br>titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Manuals** | | | | | | |
| | System Manual for 3RA6 compact starter and infeed system for the 3RA6, see https://support.industry.siemens.com/cs/ww/en/view/27865747 | | | | | |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH (see page 16/18).

8

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## Overview

Various AS-i add-on modules are available for communication of the 3RA6 compact starter with the control system using AS-Interface:

- Standard version
- With two local inputs
- With two free external inputs
- With one free external input and one free external output
- With two free external outputs
- For local control

The AS-i add-on modules can be combined only in connection with compact starters with a rated control supply voltage of 24 V AC/DC.

***AS-i add-on module for local control***

With this new module it is also possible for the connected compact starter to be operated directly using simple switches, i.e. without recourse to AS-i communication, if required.

"Automatic" mode

NC contacts can be connected to the inputs Y2 and Y4 through the local terminals on the AS-i add-on module. If the "+" connections are connected simultaneously to both local inputs, the AS-i add-on module will be in "Automatic" mode, i.e. it will communicate with the control system through AS-Interface.

Local control

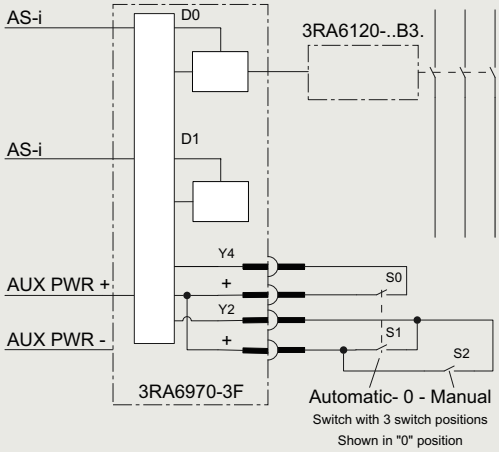
Opening the two inputs Y2 and Y4 will result in the direct disconnection of the compact starter. Operation through AS-i communication is finished and the compact starter can now be switched on and off directly using NO contacts (one NO contact per direction of rotation on the reversing starter).

"LED AUX Power" must light up green, the 24 V DC supply must be ensured and the AS-i control supply voltage must no longer be applied.

Resetting to "Automatic" mode

If a "1" signal is simultaneously applied at the local inputs, the availability bit DI 0 is switched to a "1" signal.

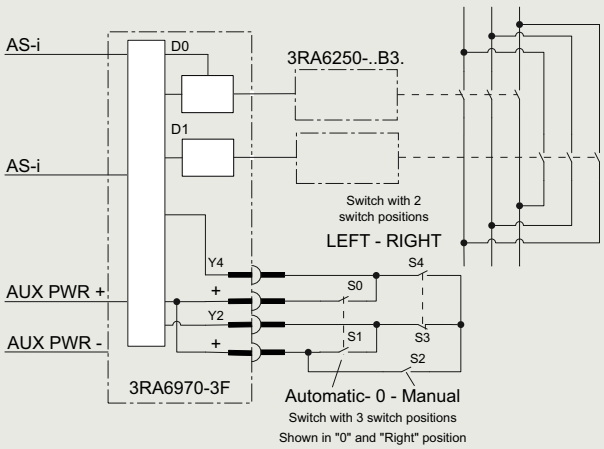
If AS-i communication is reset, the motor is first switched off and then on again when requested by the control system.




| Switch with 3 switch positions | | | |
|---|---|---|---|
| Switch | Automatic | 0 | Manual |
| S0 | Closed | Open | Open |
| S1 | Closed | Open | Open |
| S2 | Open | Open | Closed |

NSB0_02096a

Circuit diagram example for controlling a 3RA6120 direct-on-line starter using an AS-i add-on module for local control




| Switch with 3 switch positions | | | |
|---|---|---|---|
| Switch | Automatic | 0 | Manual |
| S0 | Closed | Open | Open |
| S1 | Closed | Open | Open |
| S2 | Open | Open | Closed |

| Switch with 2 switch positions | | |
|---|---|---|
| Switch | LEFT | RIGHT |
| S3 | Open | Closed |
| S4 | Closed | Open |

NSB0_02097a

Circuit diagram example for controlling a 3RA6250 reversing starter using an AS-i add-on module for local control

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## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **AS-i add-on modules** | | | | | |
| 3RA6970-3A | | | | | |
| **Standard version**<br>For communication of the compact starter with the control system through AS-Interface | **3RA6970-3A** | | 1 | 1 unit | 42F |
| **With two local inputs**<br>For safe disconnection through local safety relays, e.g. cable-operated switches | **3RA6970-3B** | | 1 | 1 unit | 42F |
| 3RA6970-3B to -3F | | | | | |
| **With two free external inputs**<br>Replaces the digital standard inputs "Motor On" and "Group warning" | **3RA6970-3C** | | 1 | 1 unit | 42F |
| **With one free external input and one free external output**<br>Replaces the digital standard input "Group warning" | **3RA6970-3D** | | 1 | 1 unit | 42F |
| **With two free external outputs**<br>Only for direct-on-line starters, replaces the digital standard input "Motor CCW" | **3RA6970-3E** | | 1 | 1 unit | 42F |
| **For local control**<br>Control of the compact starter optionally using AS-Interface or local switches | **3RA6970-3F** | | 1 | 1 unit | 42F |
| **Spare parts for AS-i add-on modules** | | | | | |
| 3RK1901-0NA00, 3RK1901-0PA00 | | | | | |
| **Connection plugs for data and auxiliary supply cable**<br>With 2 insulation displacement terminations for standard stranded wires 2 x 0.5 ... 0.75 mm² | | | | | |
| • Flat, yellow, extender | **3RK1901-0NA00** | | 1 | 5 units | 42C |
| • Flat, black, extender | **3RK1901-0PA00** | | 1 | 5 units | 42C |
| **Accessories for AS-i add-on modules** | | | | | |
| 3RK1904-2AB02 | | | | | |
| **AS-Interface addressing unit V3.0**<br>• For AS-Interface modules and sensors and actuators with integrated AS-Interface according to AS-i specification V3.0<br>• For setting the AS-i address of standard slaves, and slaves with extended addressing mode (A/B slaves)<br>• With input/output test function and many other commissioning functions<br>• Battery operation with four type AA batteries (IEC LR6, NEDA 15)<br>• Scope of supply:<br>- Addressing unit with four batteries<br>- Addressing cable, with M12 plug to addressing plug (hollow plug), length 1.5 m | **3RK1904-2AB02** | | 1 | 1 unit | 42C |

For matching AS-Interface masters, routers and power supply units, see pages 2/29, 2/41 and 2/67 onwards.

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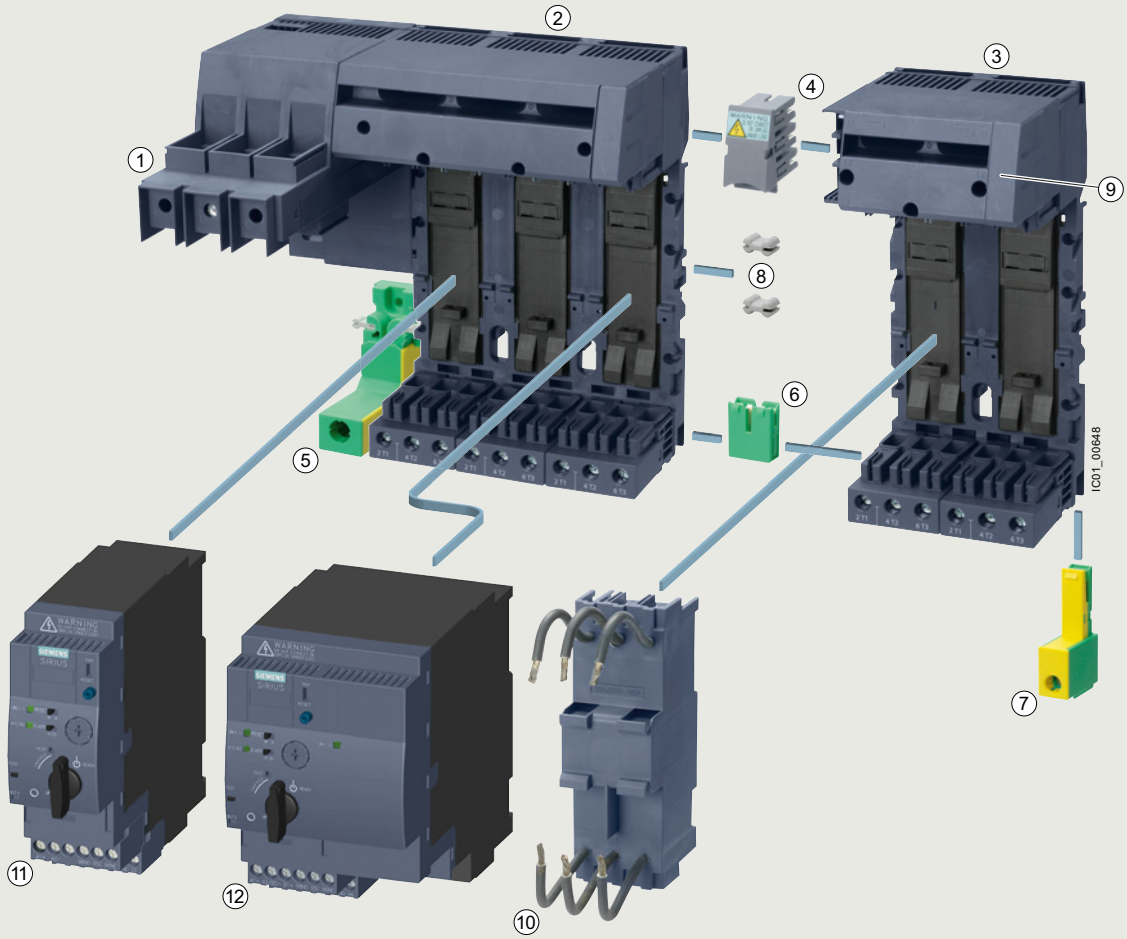
## Infeed system for 3RA6

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-infeed-system<br>Industry Mall, see www.siemens.com/product?3RA68 | Online configurator, see www.siemens.com/sirius/configurators |

The infeed system for 3RA6 compact starters enables far less wiring in the main circuit and, thanks to the easy exchangeability of the compact starters, reduces the usual downtimes for maintenance work during the plant's operating phase. The infeed system provides the possibility of completely prewiring the main circuit without a compact starter needing to be connected at the same time. As the result of the removable terminals in the main circuit, compact starters can be integrated in an infeed system in easy manner (without the use of tools).




1 Infeed terminal
2 3-socket expansion module
3 2-socket expansion module
4 Expansion plug
5 PE infeed
6 PE expansion plug
7 PE pick-off
8 Connecting wedges
9 End cover
10 45 mm adapter for SIRIUS motor starter protector size S0
11 3RA61 direct-on-line starter
12 3RA62 reversing starter

Infeed system for 3RA6 compact starters

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In addition, the integrated PE bar means it is optionally possible to connect the motor cable directly to the infeed system without additional intermediate terminals. The infeed system for 3RA6 compact starters is designed for summation currents up to 100 A with a maximum conductor cross-section of up to 70 mm² on the infeed terminal block.

The infeed system can be mounted on a DIN rail or flat surfaces.

***① Infeed***

The 3-phase infeed is available as an infeed with screw terminal (25/35 mm² up to 63 A or 50/70 mm² up to 100 A) and as an infeed with spring-loaded terminal (25/35 mm² up to 63 A).

The infeed with spring-loaded terminal can be fitted on the left as well as on the right of an expansion module.

The infeed with screw terminal is supplied only with a 3-socket expansion module and permanently fitted on the left side.

The infeeds with screw terminal enable connection of the main conductors (L1, L2, L3) either from above or from below.

The infeed with screw terminal is supplied complete with one end cover, the infeed with spring-loaded terminal complete with two end covers.

***② 3-socket expansion module***

The expansion module with three sockets for compact starters is available with screw terminals and with spring-loaded terminals.

Expansion modules enable the infeed system to be expanded and can be fitted to each other in any number.

Two expansion modules are held together with the help of two connecting wedges and one expansion plug. These assembly parts are included in the scope of supply of the respective expansion module.

When the infeed system for 3RA6 compact starters is used, the compact starters (plug-in modules) are easily assembled and disassembled even when live.

Optional possibilities:
- PE connection on motor outgoing side
- Outfeed for external auxiliary devices
- Connection to 3RV29 infeed system
- Integration of SIRIUS 3RV2 motor starter protectors size S0 up to 25 A (using 3RA6890-0BA adapter)

***③ 2-socket expansion module***

If only two instead of three additional sockets are required, then the 2-socket expansion module is the right choice. It has the same functionality as the 3-socket expansion module.

***④ Expansion plug***

Two expansion modules can be connected together using the expansion plug. Flexible expansion of the infeed system is thus possible.

***⑤ PE infeed***

This module enables a PE cable to be connected.

The PE infeed can be ordered with screw terminals and spring-loaded terminals (35 mm²) and can be fitted on the left or right of the expansion block.

***⑥ PE expansion plug***

The PE expansion plug is inserted from below and enables two PE bars to be connected.

***⑦ PE pick-off***

The PE pick-off is available with screw terminals and spring-loaded terminals (6/10 mm²). It is snapped into the infeed system from below.

***⑧ Connecting wedges***

Two connecting wedges are used to hold together two expansion modules.

***⑨ End covers***

On the last expansion module of a row, the socket provided for the expansion plug can be covered by inserting the end cover.

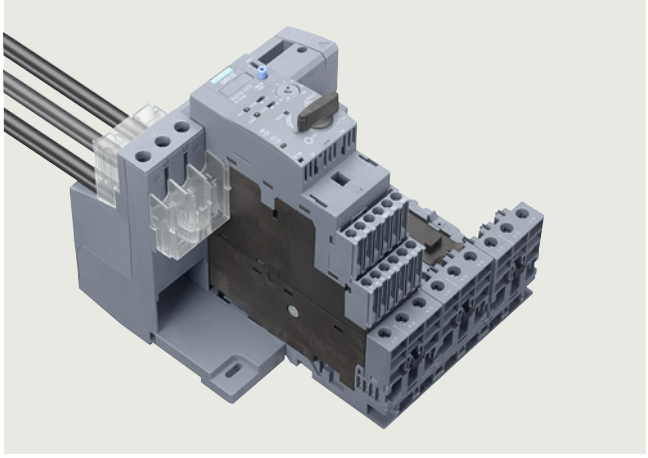
***⑩ 45 mm adapter for SIRIUS motor starter protectors size S0***

SIRIUS 3RV2 motor starter protectors size S0 with screw terminals can be fitted to the adapter, enabling them to be plugged into the infeed system.

***Terminal covers for increasing finger protection on the front***

Universally configured terminal covers are available for the 25/35 mm² and 50/70 mm² 3-phase infeeds with screw terminal:
- 3RA6880-2AB terminal covers for infeeds with screw terminal 25/35 mm² (3RA6812-8AB/AC)
- 3RA6880-3AB terminal covers for infeeds with screw terminal 50/70 mm² (3RA6813-8AB/AC)

The terminal covers can be used in two ways on the infeed terminals of the infeeds with screw terminal 25/35 mm² and 50/70 mm² (see illustration):
- If the terminals are connected, the cables are also covered:
  - by approx. 14 mm with the 3RA6880-2AB
  - by approx. 18 mm with the 3RA6880-3AB
- On clamping points without connected cables, the covers can be turned once and then pushed over the clamping points for finger-safe covering of the metal parts.



Use of the 3RA6880-2AB terminal cover on the infeed with screw terminal 25/35 mm² (3RA6812-8AB/AC). The upper cover increases the finger-safety for the connected conductors. The identical lower cover is turned for use and prevents touching of the voltage-carrying metal parts of the infeed terminal. For better recognition, the covers are shown as transparent in this illustration and not in their original color.

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## Infeed system for 3RA6

### *Terminal blocks*

Using the terminal block the three phases can be fed out of the system; this means that 1-phase, 2-phase and 3-phase components can also be integrated in the system.

After the end cover is pulled out, the terminal block can be plugged onto an expansion module.

### *Expansion plug for SIRIUS 3RV29 infeed systems*

After the end cover is pulled out, the expansion plug for the SIRIUS 3RV29 infeed system can be plugged onto an expansion module. It connects the infeed system for 3RA6 compact starters with the SIRIUS 3RV29 infeed system.

### *Maximum rated operational current*

The following maximum rated operational currents apply for the components of the infeed system for 3RA6:

| Component | Maximum rated operational current<br>A |
|---|---|
| Infeed with screw terminal 50/70 mm² | 100 |
| Infeed with screw terminal 25/35 mm² | 63 |
| Infeed with spring-loaded terminal 25/35 mm² | 63 |
| Expansion plug | 63 |

With side-by-side mounting of several expansion modules, the maximum rated operational current from the second expansion module to the end of the row is 63 A.

### *Proposal for upstream short-circuit protection devices*

The following short-circuit data apply for the components of the infeed system for 3RA6 compact starters:

| Conductor cross-section<br>mm² | Maximum let-through current $I_{d,max}$ and current integral $I^2t$ | Proposal for upstream short-circuit protection device | Maximum prospective $I_{short-circuit}$<br>kA |
|---|---|---|---|
| **Short-circuit protection for 3RA681.-8A. infeed with screw terminal (25/35 mm² and 50/70 mm²)** | | | |
| 2.5 … 35<br>2.5 ... 70 | $I_{d,\,max}$ < 21 kA, $I^2t$ = 530 kA²s | **3RV2041-4MA10**<br>(NH gG 3NA3; 315 A) | **50** |
| **Short-circuit protection for infeed with spring-loaded terminal 25/35 mm², 3RA6830-5AC** | | | |
| 4 | $I_{d,\,max}$ < 9.5 kA, $I^2t$ = 85 kA²s | **3RV2021-4DA10** | **40** |
| 6 | $I_{d,\,max}$ < 12.5 kA, $I^2t$ = 140 kA²s | **3RV2031-4EA10** | **30** |
| 10 | $I_{d,\,max}$ < 15 kA, $I^2t$ = 180 kA²s | **3RV2031-4WA10** | **25** |
| 16/25 | $I_{d,\,max}$ < 19 kA, $I^2t$ = 440 kA²s | **3RV2031-4JA10** | **65** |
| | | **3RV2041-4JA10** | **65** |
| 35 | $I_{d,\,max}$ < 21 kA, $I^2t$ = 530 kA²s | **3RV2041-4MA10**<br>(NH gG 3NA3; 315 A) | **50** |
| **Short-circuit protection for terminal block, 3RV2917-5D** | | | |
| 1.5 | $I_{d,\,max}$ < 7.5 kA | **5SY...**<br>[1] | |
| 2.5 | $I_{d,\,max}$ < 9.5 kA | | |
| 4 | $I_{d,\,max}$ < 9.5 kA | | |
| 6 | $I_{d,max}$ < 12.5 kA | | |

[1] To prevent the possibility of short circuits, the cables on the terminal block must be installed so that they are short-circuit-proof.

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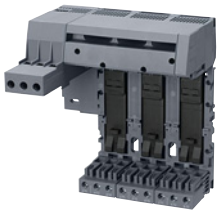
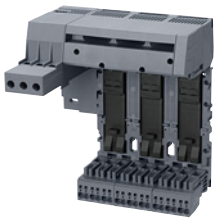
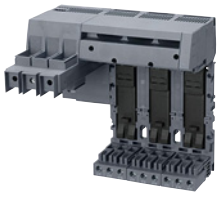
## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **3-phase infeeds and expansion modules** | | | | | |
| ***Infeeds with screw terminal 25/35 mm² left*** | | | | | |
| **Infeed with screw terminal at line side** with a permanently fitted 3-socket expansion module with screw or spring-loaded terminals on the outgoing side and integrated PE bar<br>**Expansion module** with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter | | | | | |
| | **Screw terminals** | | | | |
| • Screw terminals on the outgoing side | **3RA6812-8AB** | | 1 | 1 unit | 42F |
| | **Spring-loaded terminals** | | | | |
| • Spring-loaded terminals on the outgoing side | **3RA6812-8AC** | | 1 | 1 unit | 42F |
| ***Infeeds with screw terminal 50/70 mm² left*** | | | | | |
| **Infeed with screw terminal at line side** with a permanently fitted 3-socket expansion module with screw or spring-loaded terminals on the outgoing side and integrated PE bar<br>**Expansion module** with 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter, suitable for UL operation according to UL 508 Type E | | | | | |
| | **Screw terminals** | | | | |
| • Screw terminals on the outgoing side | **3RA6813-8AB** | | 1 | 1 unit | 42F |
| | **Spring-loaded terminals** | | | | |
| • Spring-loaded terminals on the outgoing side | **3RA6813-8AC** | | 1 | 1 unit | 42F |
| ***Infeeds with spring-loaded terminals 25/35 mm² left or right*** | | | | | |
| | **Spring-loaded terminals** | | | | |
| Up to 63 A | **3RA6830-5AC** | | 1 | 1 unit | 42F |


3RA6812-8AB


3RA6812-8AC


3RA6813-8AB

3RA6813-8AC

3RA6830-5AC

8

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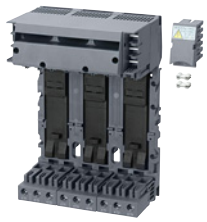
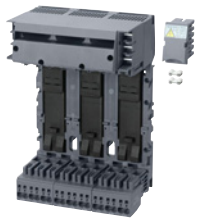
## Infeed system for 3RA6

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Expansion modules** | | | | | | |
| 3RA6822-0AB | ***2-socket expansion modules*** **With screw or spring-loaded terminals and integrated PE bar** With 2 sockets for 2 direct-on-line starters or 1 reversing starter Expansion plug and 2 connecting wedges are included in the scope of supply. | | | | | |
| | | **Screw terminals** | | | | |
| | • Version with screw terminals | **3RA6822-0AB** | | 1 | 1 unit | 42F |
| 3RA6822-0AC | | **Spring-loaded terminals** | | | | |
| | • Version with spring-loaded terminals | **3RA6822-0AC** | | 1 | 1 unit | 42F |
|  3RA6823-0AB | ***3-socket expansion modules*** **With screw or spring-loaded terminals and integrated PE bar** With 3 sockets for 3 direct-on-line starters or 1 direct-on-line starter and 1 reversing starter Expansion plug and 2 connecting wedges are included in the scope of supply. | | | | | |
| | | **Screw terminals** | | | | |
| | • Version with screw terminals | **3RA6823-0AB** | | 1 | 1 unit | 42F |
|  3RA6823-0AC | | **Spring-loaded terminals** | | | | |
| | • Version with spring-loaded terminals | **3RA6823-0AC** | | 1 | 1 unit | 42F |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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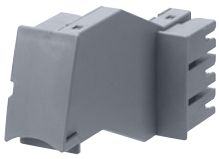
| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Accessories for infeed systems for 3RA6** | | | | | | |
| | ***PE infeeds, 25/35 mm²*** | | | | | |
| 3RA6860-6AB | | **Screw terminals** | | | | |
| | • Version with screw terminals | **3RA6860-6AB** | | 1 | 1 unit | 42F |
| 3RA6860-5AC | | **Spring-loaded terminals** | | | | |
| | • Version with spring-loaded terminals | **3RA6860-5AC** | | 1 | 1 unit | 42F |
| | ***PE pick-offs 6/10 mm²*** | | | | | |
| 3RA6870-4AB | | **Screw terminals** | | | | |
| | • Version with screw terminals | **3RA6870-4AB** | | 1 | 1 unit | 42F |
| 3RA6870-3AC | | **Spring-loaded terminals** | | | | |
| | • Version with spring-loaded terminals | **3RA6870-3AC** | | 1 | 1 unit | 42F |
| | ***Expansion plugs*** | | | | | |
| 3RA6890-0EA | **PE expansion plugs** | **3RA6890-0EA** | | 1 | 1 unit | 42F |
| 3RA6890-1AB | **Expansion plugs**<br>Between 2 expansion modules<br>Included in the scope of supply of the expansion modules | **3RA6890-1AB** | | 1 | 1 unit | 42F |
|  3RA6890-1AA | **Expansion plugs for SIRIUS 3RV29 infeed system**<br>Connect infeed system for 3RA6 to 3RV29 infeed system | **3RA6890-1AA** | | 1 | 1 unit | 42F |

8

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Infeed system for 3RA6

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Accessories for infeed systems for 3RA6** (continued) | | | | | | |
| 3RA6890-0BA | ***45 mm adapters***<br>For SIRIUS 3RV2.2 motor starter protectors/circuit breakers size S0 up to 25 A<br>• Screw terminals (conductor cross-section AWG 10) | **Screw terminals**<br>**3RA6890-0BA** | | 1 | 1 unit | 42F |
| 3RA6880-2AB | ***Terminal covers for infeeds with screw terminals***<br>**IP20 terminal covers for infeeds with screw terminal 25/35 mm² (3RA6812-8AB/AC)**<br>(2 units per pack) | **3RA6880-2AB** | | 1 | 1 unit | 42F |
| 3RA6880-3AB | **IP20 terminal covers for infeeds with screw terminal 50/70 mm² (3RA6813-8AB/AC)**<br>(2 units per pack) | **3RA6880-3AB** | | 1 | 1 unit | 42F |
| 3RV2917-5D | ***Terminal blocks***<br>For integration of 1-phase, 2-phase and 3-phase external components<br>• Spring-loaded terminals | **Spring-loaded terminals**<br>**3RV2917-5D** | | 1 | 1 unit | 41E |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | ***Screwdriver***<br>For all SIRIUS devices with spring-loaded terminals<br>Length, approx. 200 mm,<br>3.0 mm x 0.5 mm,<br>titanium gray/black,<br>partially insulated | **Spring-loaded terminals**<br>**3RA2908-1A** | | 1 | 1 unit | 41B |
| **Manuals** | | | | | | |
| | System Manual for 3RA6 compact starter and infeed system for 3RA6, see https://support.industry.siemens.com/cs/ww/en/view/27865747 | | | | | |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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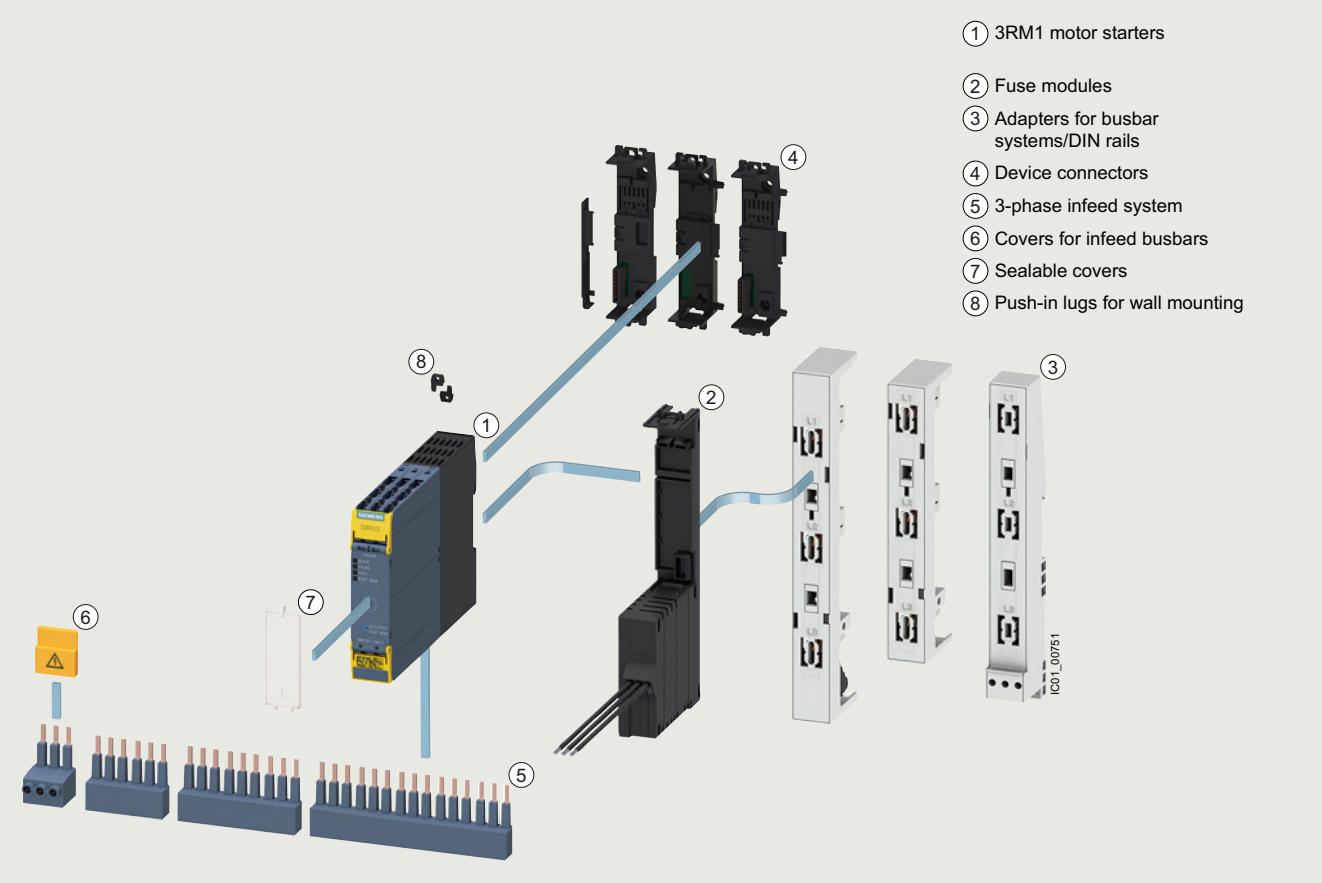
## Overview




SIRIUS 3RM1 motor starters with accessories

**More information**

3RM1 motor starters:
- Homepage, see www.siemens.com/sirius-motor-starter-3RM1
- Industry Mall, see www.siemens.com/product?3RM1
- Online configurator, see www.siemens.com/sirius/configurators

3SK safety relays for protecting the 3RM1 motor starters:
- Homepage, see www.siemens.com/sirius-safety-relays
- Industry Mall, see www.siemens.com/product?3SK

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=MotorStarter3RM1

Decision support for motor start – Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide

Industry Online Support (SIOS) topic page with information on the planning and operating phases, see https://support.industry.siemens.com/cs/ww/en/view/109792664

SIRIUS 3RM1 motor starters are compact devices, 22.5 mm wide, combining a large number of functions in a single enclosure. They consist of combinations of relay contacts, power semiconductors (hybrid technology), and an electronic overload relay for operational switching of three-phase motors up to 3 kW (at 400 V) and resistive loads up to 10 A at AC voltages up to 500 V.

The 3RM1 motor starters with overload protection with wide setting range are available as direct-on-line starters and reversing starters and as versions with safety-related shutdown up to SIL 3 and PL e.

Video: SIRIUS 3RM1 motor starters – Compact, economical, simple

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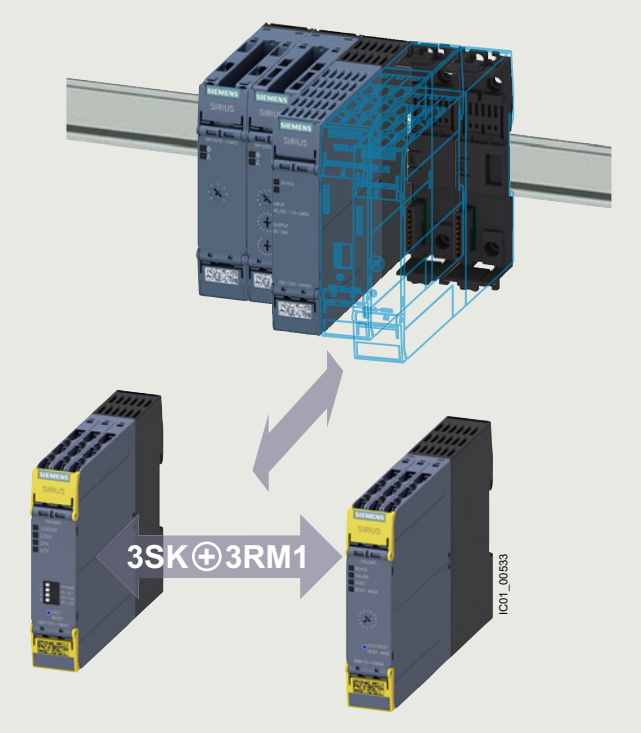
## SIRIUS 3RM1 motor starters

### *Seamlessly integrated safety right through to the main circuit*




Problem-free integration of functional safety into the main circuit through the simple combination of 3RM1 and 3SK devices

Functional safety in the main circuit needs to be both simple and flexible.

The unique compatibility of hybrid 3RM1 fail-safe motor starters and 3SK safety relays means that integrated functional safety right through to the main circuit is no longer a problem.

Their compact design allows the motor starters to be installed to the right of the safety relay in a simple manner, just like an output expansion. The wiring of the safety-related signals to the relay can be performed simply, quickly and in an error-free manner using the device connector.

The ergonomically designed enclosure with removable terminals and terminal labeling in the hinged cover allows for the cables to be conveniently diagonally mounted from the front. Either screw or spring-loaded terminals with push-in technology are available.

Highlights

- Fail-safe disconnection of motors up to 3 kW
- Problem-free combination of fail-safe motor starters and safety relays
- End-to-end system, simple setup using device connectors
- Ergonomic enclosure

Note:

For SIRIUS 3SK safety relays, see page 11/13.

### *Online configurator*

Online configurator

An online configurator with a wide range of functions is available for the SIRIUS 3RM1 motor starters.
(see www.siemens.com/sirius/configurators):

- Create individual motor starters or a complex motor starter group
- Individual selection options, such as direct or reversing starting, spring-loaded or screw terminals, as well as motor current and control voltage
- Graphic representation of the design during configuration
- Automatic calculation of the matching motor starter protector/circuit breaker (for group configuration)

### *Ordering notes for multi-unit packaging*

SIRIUS 3RM1 motor starters can also be ordered in practical, environment-friendly multi-unit packaging on request.

Multi-unit packaging with order code X90

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code "**X90**" must be specified.

Ordering example:

3RM1201-2AA04-Z X90;
purchase order quantity 12 units → Delivery of one package containing 12 units

For more information, see page 16/7.

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***Article number scheme***

| Product versions | | Article number | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Product function | Direct-on-line starters | **3RM10** | **0** | **☐** | **–** | **☐** | **AA** | **☐** | **4** | |
| | Failsafe direct-on-line starters | **3RM11** | **0** | **☐** | **–** | **☐** | **AA** | **☐** | **4** | With ATEX certification and safety-related shutdown |
| | Reversing starters | **3RM12** | **0** | **☐** | **–** | **☐** | **AA** | **☐** | **4** | |
| | Failsafe reversing starters | **3RM13** | **0** | **☐** | **–** | **☐** | **AA** | **☐** | **4** | With ATEX certification and safety-related shutdown |
| Wide setting range for electronic overload release | 0.1 ... 0.5 A | | | **1** | | | | | | For motor standard output 0 ... 0.12 kW[2] |
| | 0.4 ... 2.0 A | | | **2** | | | | | | For motor standard output 0.09 ... 0.75 kW[2] |
| | 1.6 ... 7.0 A (10 A)[1] | | | **7** | | | | | | For motor standard output 0.55 ... 3 kW[2] |
| Connection method | Screw terminals | | | | | **1** | | | | |
| | Spring-loaded terminals (push-in) | | | | | **2** | | | | |
| | Mixed connection method | | | | | **3** | | | | Spring-loaded terminals (push-in) |
| Rated control supply voltage $U_s$ | 24 V DC | | | | | | | **0** | | |
| | 110 ... 230 V AC, 110 V DC | | | | | | | **1** | | |
| Example | | **3RM13** | **0** | **1** | **–** | **2** | **AA** | **0** | **4** | |

[1] Operation of resistive loads with up to 10 A.

[2] Standard three-phase motor, basis 4-pole at 400 V AC; the actual starting and rated data of the motor to be protected must be considered when selecting the units.

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

- Less space required in the control cabinet (20 to 80%) thanks to high functional density, which also means reduced wiring and testing
- Greater endurance and reduced heat losses thanks to hybrid technology
- Lower costs for stock keeping and configuration as a result of the wide setting range of the electronic overload release (up to 1:5)
- Fast wiring without tools for rigid conductors or conductors equipped with end sleeves thanks to spring-loaded terminals (push-in)
- Safety-related shutdown in accordance with SIL 3 and PL e by shutting down the control supply voltage without additional devices in the main circuit
- The motor starters can be ideally combined with 3SK safety relays for safety-related shutdown (see page 11/13)
- Motor status feedback to the higher-level control system in the case of 3RM10 and 3RM12 motor starters in the 24 V DC version
- Virtually error-free wiring on the mains connection side and reduction in short-circuit protective devices by means of 3RM19 infeed system
- ATEX certification of the overload protection of the 3RM1 Failsafe motor starters: "Increased safety" type of protection EEx e according to ATEX directive 2014/34/EU
- The 3RM1 motor starters can be used with highly efficient IE3 and IE4 motors. In this regard, please observe the information on dimensioning and configuring, see Application Manual.
  For more information, see page 1/8.

***Standards and approvals***

- IEC/EN 60947-4-2
- UL 60947-4-2
- CSA[1]
- ATEX
- IEC 61508: SIL 3
- IEC 62061: SIL 3
- ISO 13849-1: PL e
- CCC approval for China

[1] The CSA approval is valid for a maximum operational voltage of 400 V, see https://support.industry.siemens.com/cs/ww/en/view/109481789.

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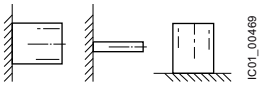
## Technical specifications

| More information | |
|---|---|
| Industry Mall, see www.siemens.com/product?3RM1 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16311/faq |
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/66295730 | |

| Article number | | | 3RM1 |
|---|---|---|---|
| **General technical specifications** | | | |
| **Dimensions (W x H x D)** | | mm | 22.5 x 100 x 141.6 |
| **Ambient temperature** | | | |
| • During operation | | °C | -25 … +60 |
| • During storage | | °C | -40 … +70 |
| • During transport | | °C | -40 … +70 |
| **Installation altitude at height above sea level, maximum** | | m | 4 000 (observe derating) |
| **Shock resistance** | | | 6 *g*/11 ms |
| **Vibration resistance** | | | 1 ... 6 Hz, 15 mm; 20 m/s², 500 Hz |
| **Degree of protection IP on the front** | According to IEC 60529 | | IP20 |
| **Touch protection on the front** | According to IEC 60529 | | Finger-safe for vertical touching from the front |
| **Mounting position** |  | | Vertical, horizontal, standing (consider derating) |

| Article number | | | 3RM1.01 | 3RM1.02 | 3RM1.07 |
|---|---|---|---|---|---|
| **Main circuit** | | | | | |
| **Operational voltage, rated value, maximum** | | V | 500 | | |
| **Operating frequency** | | Hz | 50/60 | | |
| **Operational current at AC-53a at 400 V at an ambient temperature of 40 °C** | | A | 0.5 | 2 | 7 |
| **Minimum load [%]** | | % | 20 | | |
| **Adjustable current response value of the inverse-time delayed overload release** | | A | 0.1 ... 0.5 | 0.4 ... 2 | 1.6 ... 7 |

| Article number | | | 3RM1.0.-.AA04 | 3RM1.0.-.AA14 |
|---|---|---|---|---|
| **Control circuit** | | | | |
| **Type of voltage of the control supply voltage** | | | DC | AC/DC |
| **Control supply voltage** | | | | |
| • At DC | | V | 24 | 110 |
| • At AC at 50 Hz | | V | -- | 110 … 230 |
| **Frequency of the control supply voltage** | | Hz | -- | 50/60 |

| Type | | | 3RM1.0.-1AA.4 | 3RM1.0.-3AA.4 | 3RM1.0.-2AA.4 |
|---|---|---|---|---|---|
| **Connections/terminals** | | | | | |
| **Type of electrical connection for the main circuit** (1 or 2 conductors can be connected) | | | **Screw terminals** | | **Spring-loaded terminals (push-in)** |
| **Connectable conductor cross-section for main contacts** | | | | | |
| • Solid | | mm² | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) | | 1 x (0.5 ... 4) |
| • Finely stranded | | | | | |
| - With end sleeve | | mm² | 1 x (0.5 ... 4), 2 x (0.5 ... 1.5) | | 1 x (0.5 ... 2.5) |
| - Without end sleeve | | mm² | -- | | 1 x (0.5 ... 4) |
| **Type of electrical connection for auxiliary and control circuits** (1 or 2 conductors can be connected) | | | **Screw terminals** | **Spring-loaded terminals (push-in)** | |
| **Type of connectable conductor cross-sections for auxiliary contacts** | | | | | |
| • Solid | | mm² | 1 x (0.5 ... 2.5)<br>2 x (1.0 ... 1.5) | 1 x (0.5 ... 1.5), 2 x (0.5 ... 1.5) | |
| • Finely stranded | | | | | |
| - With end sleeve | | mm² | 1 x (0.5 ... 2.5)<br>2 x (0.5 ... 1) | 1 x (0.5 ... 1.0), 2 x (0.5 ... 1.0) | |
| - Without end sleeve | | mm² | -- | 1 x (0.5 ... 1.5), 2 x (0.5 ... 1.5) | |
| **Type of connectable conductor cross-sections for AWG cables** | | | | | |
| • For main contacts | | | 1 x (20 ... 12), 2 x (20 ... 14) | | 1 x (20 ... 12) |
| • For auxiliary contacts | | | 1 x (20 ... 14),<br>2 x (18 ... 16) | 1 x (20 ... 16), 2 x (20 ... 16) | |

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## Accessories

**More information**

Equipment Manual, see
https://support.industry.siemens.com/cs/ww/en/view/66295730

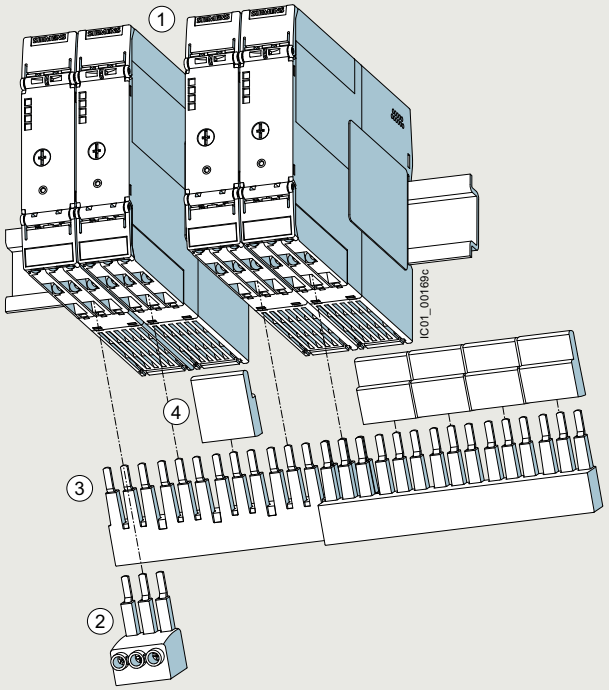
### *3-phase infeed system (3RM19 3-phase busbar system)*

The system permits an easy, time-saving and safe means of feeding two or more 3RM1 motor starters. It can be used only with motor starters with screw terminals and in combination with 8US1716-0RK00 adapters for mounting rails in the main circuit.

The maximum summation current must not exceed 25 A.
The primary infeed is connected via a 3-phase infeed terminal.

The busbars are available in three lengths, for two, three or five motor starters. More than five devices can be connected by clamping the connection tags of a second busbar underneath, rotated 180°.

The 3-phase busbars have touch protection but empty connection tags must be fitted with covers.




1 Four 3RM1 motor starters on DIN rail with one free slot
2 3RM1920-1AA 3-phase infeed terminal
3 Two 3RM1910-1DA 3-phase busbars rotated through 180° for the connection of up to nine motor starters
4 Covers for three 3RM1910-6AA connection tags respectively for unused slots

3RM19 infeed system with 3-phase infeed terminal: In the above example, two 3-phase busbars (5-pole busbars) rotated 180° allow up to nine 3RM1 motor starters to be connected. Contact with the unused connection tags in unoccupied positions is prevented safely by the covers.

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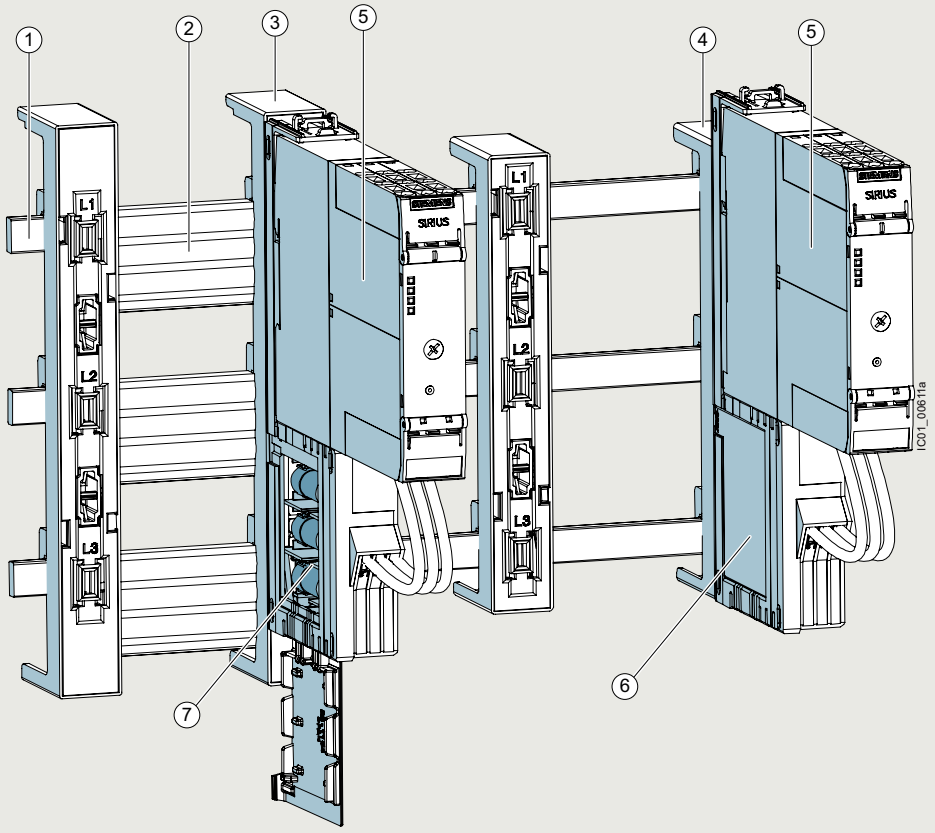
## SIRIUS 3RM1 motor starters

***Fuse module for the use of 3RM1 motor starters on 8US busbar systems and mounting rails***

The fuse module permits the very compact construction of a load feeder with a maximum width of 22.5 mm. The 3RM1 motor starter in combination with the integrated fuses for short-circuit protection can thus be used in this way on 8US busbar systems.
By means of different adapters, the fuse module can be used in all 60 mm busbar systems and also in compact busbar systems, as well as on mounting rails. The interface to the adapter also permits a simple and secure replacement of the load feeder.

The fuse module can be combined with all 3RM1 motor starters. The easily replaceable fuses protect the motor starter, the connected motor and the cables.




1 Busbar system
2 Cover profiles for busbars
3 Busbar adapter
4 Compact busbar adapter
5 3RM1 motor starter
6 3RM19 fuse module
7 3RM19 fuse module with open flap (Flap cannot be opened when fuse module is inserted. The fuse module must be removed to change the fuses.)

By means of the fuse module, 3RM1 motor starters can be used in busbar systems and 8US compact busbar systems as well as on mounting rails

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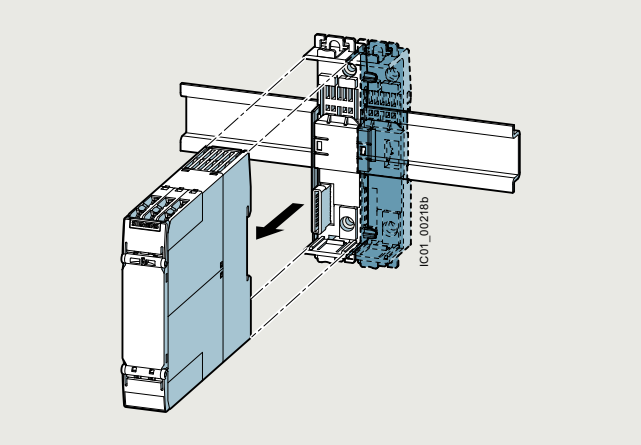
***Device connectors for the control circuit***

The device connectors for 3RM1 motor starters (24 V DC control supply voltage only) reduce the outlay for cabling by looping through the control supply voltage. The device connectors can be snapped onto a DIN rail or fixed to a level mounting panel using screws.




Device connector with 3RM1 motor starter

Using the device connectors exclusively for feeding in the control supply voltage

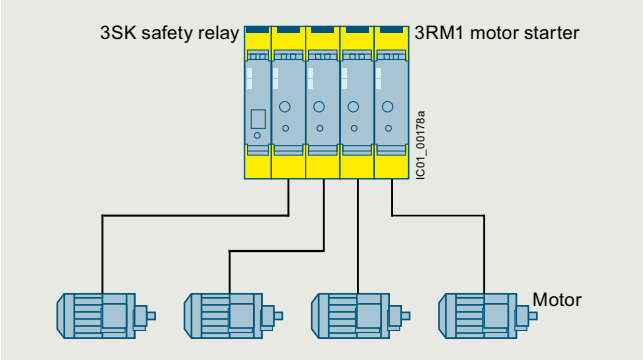
By using device connectors, a maximum of five motor starters can be supplied with 24 V DC control supply voltage. This requires the control supply voltage to be applied to the A1 and A2 terminals of only one motor starter.

Device daisy chain connectors can be used for gaps between two motor starters. Device termination connectors terminate a group.

Using the device connectors for safe group shutdown

In combination with the 3RM11 and 3RM13 fail-safe motor starters, the device connector can also be used for safety-related shutdown. For this application, groups of no more than five fail-safe motor starters can be connected using a device connector, and the group must be terminated with a termination connector. Removing the control voltage supply from the first motor starter will safely shut down the whole group.

Safe group shutdown can be implemented particularly easily in conjunction with 3SK safety relays. In this case, up to five motor starters can be directly connected to 3SK safety relays via the device connector and then safely shut down (see page 11/13).




Ideal connection: Combination of four SIRIUS 3RM1 Failsafe motor starters with SIRIUS 3SK safety relays

***Electromechanical switching devices in series with hybrid motor starters***

Switching an inductive load - in particular of motors < 1 kW with high inductance - with an electromechanical switching device (e.g. contactor) can cause high and steep voltage edges.

The resulting faults/damage can be prevented by first disconnecting with the hybrid motor starter or by using EMC suppression modules:

- For 3RT2916-1P.. EMC suppression modules for direct mounting on the contactor, see page 3/113
- For motor suppression modules that are fitted in the main circuit, see page 8/93

Note:

For more information, see https://support.industry.siemens.com/cs/ww/en/view/109758696.

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## SIRIUS 3RM1 motor starters *IE3/IE4 ready*

### Selection and ordering data

**More information**

Industry Mall, see www.siemens.com/product?3RM1

Multi-unit packaging see page 16/7.

| Ratings of three-phase motors at 400 V[1] | Adjustable current response value of the inverse-time delayed overload release | Control supply voltage at DC | Control supply voltage at AC at 50 Hz | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| kW | A | V | V | | | | | |
| **Direct-on-line starters** | | | | | | | | |
| 0 … 0.12 | 0.1 … 0.5 | 24 | -- | **3RM1001-□AA04** | | 1 | 1 unit | 41D |
| 0.09 … 0.75 | 0.4 … 2 | 24 | -- | **3RM1002-□AA04** | | 1 | 1 unit | 41D |
| 0.55 … 3 | 1.6 … 7 | 24 | -- | **3RM1007-□AA04** | | 1 | 1 unit | 41D |
| 0 … 0.12 | 0.1 … 0.5 | 110 | 110 ... 230 | **3RM1001-□AA14** | | 1 | 1 unit | 41D |
| 0.09 … 0.75 | 0.4 … 2 | 110 | 110 ... 230 | **3RM1002-□AA14** | | 1 | 1 unit | 41D |
| 0.55 … 3 | 1.6 … 7 | 110 | 110 ... 230 | **3RM1007-□AA14** | | 1 | 1 unit | 41D |

3RM1001-1AA04

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Reversing starters** | | | | | | | | |
| 0 … 0.12 | 0.1 … 0.5 | 24 | -- | **3RM1201-□AA04** | | 1 | 1 unit | 41D |
| 0.09 … 0.75 | 0.4 … 2 | 24 | -- | **3RM1202-□AA04** | | 1 | 1 unit | 41D |
| 0.55 … 3 | 1.6 … 7 | 24 | -- | **3RM1207-□AA04** | | 1 | 1 unit | 41D |
| 0 … 0.12 | 0.1 … 0.5 | 110 | 110 ... 230 | **3RM1201-□AA14** | | 1 | 1 unit | 41D |
| 0.09 … 0.75 | 0.4 … 2 | 110 | 110 ... 230 | **3RM1202-□AA14** | | 1 | 1 unit | 41D |
| 0.55 … 3 | 1.6 … 7 | 110 | 110 ... 230 | **3RM1207-□AA14** | | 1 | 1 unit | 41D |

3RM1201-1AA04

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Failsafe direct-on-line starters** | | | | | | | | |
| 0 … 0.12 | 0.1 … 0.5 | 24 | -- | **3RM1101-□AA04** | | 1 | 1 unit | 41D |
| 0.09 … 0.75 | 0.4 … 2 | 24 | -- | **3RM1102-□AA04** | | 1 | 1 unit | 41D |
| 0.55 … 3 | 1.6 … 7 | 24 | -- | **3RM1107-□AA04** | | 1 | 1 unit | 41D |
| 0 … 0.12 | 0.1 … 0.5 | 110 | 110 ... 230 | **3RM1101-□AA14** | | 1 | 1 unit | 41D |
| 0.09 … 0.75 | 0.4 … 2 | 110 | 110 ... 230 | **3RM1102-□AA14** | | 1 | 1 unit | 41D |
| 0.55 … 3 | 1.6 … 7 | 110 | 110 ... 230 | **3RM1107-□AA14** | | 1 | 1 unit | 41D |

3RM1101-1AA04

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Failsafe reversing starters** | | | | | | | | |
| 0 … 0.12 | 0.1 … 0.5 | 24 | -- | **3RM1301-□AA04** | | 1 | 1 unit | 41D |
| 0.09 … 0.75 | 0.4 … 2 | 24 | -- | **3RM1302-□AA04** | | 1 | 1 unit | 41D |
| 0.55 … 3 | 1.6 … 7 | 24 | -- | **3RM1307-□AA04** | | 1 | 1 unit | 41D |
| 0 … 0.12 | 0.1 … 0.5 | 110 | 110 ... 230 | **3RM1301-□AA14** | | 1 | 1 unit | 41D |
| 0.09 … 0.75 | 0.4 … 2 | 110 | 110 ... 230 | **3RM1302-□AA14** | | 1 | 1 unit | 41D |
| 0.55 … 3 | 1.6 … 7 | 110 | 110 ... 230 | **3RM1307-□AA14** | | 1 | 1 unit | 41D |

3RM1301-1AA04

**Type of electrical connection**

- Screw terminals for main circuit, screw terminals for control circuit **1**
- Spring-loaded terminals (push-in) for main circuit, spring-loaded terminals (push-in) for control circuit **2**
- Screw terminals for main circuit, spring-loaded terminals (push-in) for control circuit **3**

[1] The actual starting and rated data of the motor to be protected must be considered when selecting the units.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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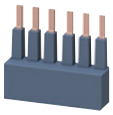
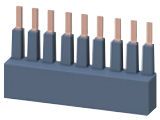
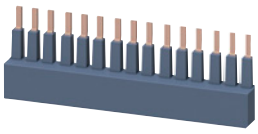
| | Product designation | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **3-phase infeed system for 3RM1 with screw terminals** | | | | | | |
| 3RM1920-1AA | **3-phase infeed terminals**<br>• For 3-phase busbars | **3RM1920-1AA** | | 1 | 1 unit | 41D |
| | **3-phase busbars** | | | | | |
|  3RM1910-1AA | • For 2 motor starters | **3RM1910-1AA** | | 1 | 1 unit | 41D |
|  3RM1910-1BA | • For 3 motor starters | **3RM1910-1BA** | | 1 | 1 unit | 41D |
|  3RM1910-1DA | • For 5 motor starters | **3RM1910-1DA** | | 1 | 1 unit | 41D |
| 3RM1910-6AA | **Covers**<br>For 3 connection tags of the 3-phase busbars | **3RM1910-6AA** | | 1 | 10 units | 41D |
| **Fuse modules for 3RM1 for use on busbars or mounting rails** | | | | | | |
| 3RM1932-1AB | **Fuse module with 3NW6007-1 fuse** | **3RM1932-1AB** | | 1 | 1 unit | 41D |
| | **Fuse module without fuse**[1)] | **3RM1930-1AA** | | 1 | 1 unit | 41D |
| **Adapters** | | | | | | |
| 8US1216-0AS00 | **Adapters for 60 mm busbar systems**<br>22.5 mm x 200 mm x 41.5 mm<br>Note: The adapter can be used on busbars with a width of 12 mm, 15 mm, 20 mm, 25 mm or 30 mm and a thickness of 5 mm or 10 mm. | **8US1216-0AS00** | | 1 | 1 unit | 14O |
| 8US1616-0AK02 | **Adapters for 60 mm compact busbar systems**<br>22.5 mm x 160 mm x 41.5 mm<br>Note: The adapter can be used on busbars with a width of 12 mm and a thickness of 5 mm or 10 mm. | **8US1616-0AK02** | | 1 | 1 unit | 14O |

[1)] For details of alternative fuses, see Equipment Manual.

8

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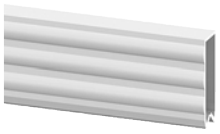
## SIRIUS 3RM1 motor starters

| | Product designation | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Adapters** | | | | | | |
| 8US1716-0RK00 | **Adapter for 35 mm DIN mounting rails**<br>22.5 mm x 185 mm x 23.5 mm | **8US1716-0RK00** | | 1 | 1 unit | 14O |
| **Cover profiles**[1)2)] | | | | | | |
| ***Cover profiles for busbars*** | | | | | | |
| 8US1922-2CA00 | 12 mm x 5 mm x 1 000 mm<br>40 mm or 60 mm center-to-center busbar clearance depending on busbar system | **8US1922-2CA00** | | 1 | 10 units | 14O |
| 8US1922-2AA00 | 15 mm x 5 mm x 1 000 mm<br>20 mm x 5 mm x 1 000 mm<br>25 mm x 5 mm x 1 000 mm<br>30 mm x 5 mm x 1 000 mm<br>40 mm or 60 mm center-to-center busbar clearance depending on busbar system | **8US1922-2AA00** | | 1 | 10 units | 14O |
|  8US1922-2BA00 | 12 mm x 10 mm x 1 000 mm<br>15 mm x 10 mm x 1 000 mm<br>20 mm x 10 mm x 1 000 mm<br>25 mm x 10 mm x 1 000 mm<br>30 mm x 10 mm x 1 000 mm<br>60 mm center-to-center busbar clearance | **8US1922-2BA00** | | 1 | 10 units | 14O |
| **Device connectors** | | | | | | |
| 3ZY1212-2EA00 | **Device connectors**<br>For 3RM1 motor starters, 24 V DC, 22.5 mm | **3ZY1212-2EA00** | | 1 | 1 unit | 41L |
| 3ZY1212-2AB00 | **Device daisy chain connectors**<br>For 3RM1 motor starters, 24 V DC, 22.5 mm<br>For gaps without motor starters in assemblies | **3ZY1212-2AB00** | | 1 | 1 unit | 41L |
| 3ZY1212-2FA00 | **Device termination connectors**<br>For 3RM1 motor starters, 24 V DC, 22.5 mm | **3ZY1212-2FA00** | | 1 | 1 unit | 41L |

1) The cover profiles for busbars can be used for maintaining minimum spacing between the load feeders.

2) For further accessories for the configuration of a busbar system, see Catalog LV 10.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Product designation | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Removable terminals** | | | | | | |
| 3ZY1122-1BA00 | **Terminals for main circuit, 2-pole** | | | | | |
| | | **Screw terminals** | | | | |
| | • Version with screw terminals, up to max. 1 x 4 mm² or 2 x 2.5 mm² | **3ZY1122-1BA00** | | 1 | 6 units | 41L |
| | | **Spring-loaded terminals (push-in)** | | | | |
| | • Version with spring-loaded terminals (push-in), up to max. 1 x 4 mm² or 2 x 1.5 mm² (both in one end sleeve) | **3ZY1122-2BA00** | | 1 | 6 units | 41L |
| 3ZY1131-1BA00 | **Terminals for control circuit, 3-pole** | | | | | |
| | | **Screw terminals** | | | | |
| | • Version with screw terminals, up to max. 2 x 1.5 mm² or 1 x 2.5 mm² | **3ZY1131-1BA00** | | 1 | 6 units | 41L |
| | | **Spring-loaded terminals (push-in)** | | | | |
| | • Version with spring-loaded terminals (push-in), up to max. 2 x 1.5 mm² | **3ZY1131-2BA00** | | 1 | 6 units | 41L |
| **Further accessories** | | | | | | |
| 3ZY1311-0AA00 | **Push-in lugs for wall mounting** 2 lugs per device are required | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| 3ZY1321-2AA00 | **Sealable covers, 22.5 mm** For simple protection against unauthorized access | **3ZY1321-2AA00** | | 1 | 5 units | 41L |
| 3ZY1440-1AA00 | **Coding pins for removable terminals** For mechanical coding of the terminals | **3ZY1440-1AA00** | | 1 | 12 units | 41L |
| | **Hinged cover** Replacement cover, without terminal labeling, 22.5 mm wide | | | | | |
| | • Titanium gray | **3ZY1450-1AB00** | | 1 | 5 units | 41L |
| | • Yellow | **3ZY1450-1BB00** | | 1 | 5 units | 41L |
| 3ZY1450-1AB00 | | | | | | |
| 3RK1911-6EA00 | **Motor suppression module** | | | | | |
| | • Square | **3RK1911-6EA00** | | 1 | 1 unit | 42D |
| | • Round | **3RK1911-6EB00** | | 1 | 1 unit | 42D |
| 3RA2908-1A | **Screwdriver** For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals** | | | | |
| | Length, approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

8

* You can order this quantity or a multiple thereof.
Illustrations are approximate

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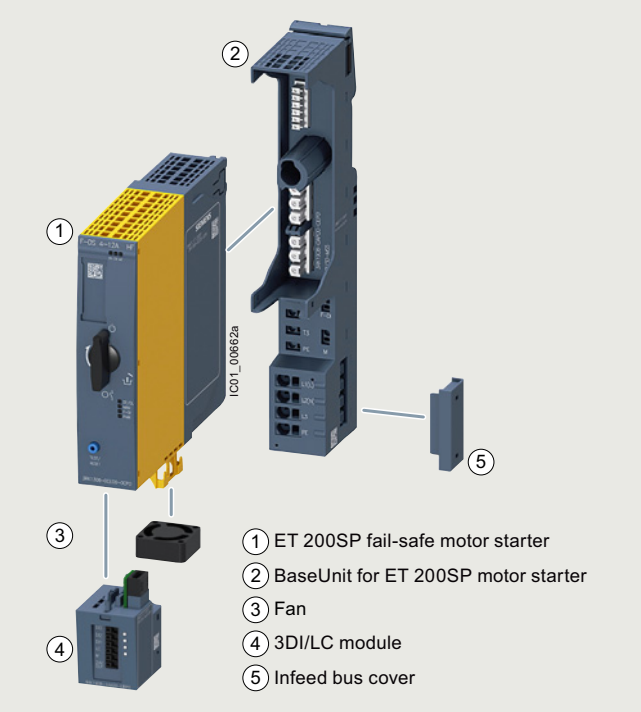
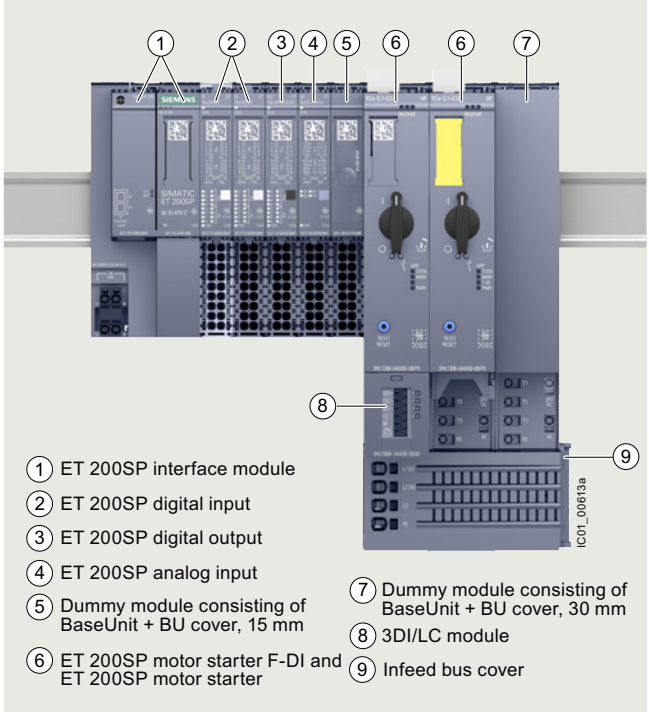
## ET 200SP motor starters

### Overview




Motor starter, BaseUnit, fan and 3DI/LC control module




3RK1308 motor starter in the ET 200SP I/O system

**More information**

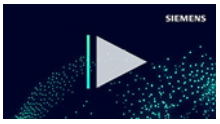
Homepage, see www.siemens.com/sirius-motor-starter-et200sp
Industry Mall, see www.siemens.com/product?3RK1308
TIA Selection Tool, see www.siemens.com/TST
Decision support for motor start – Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide

Industry Online Support (SIOS) topic page with information on the planning and operating phases, see https://support.industry.siemens.com/cs/ww/en/view/109792664
Further components in the ET 200SP I/O system:
- Catalog ST 70
- Homepage, see www.siemens.com/et200sp

### *ET 200SP motor starters*

ET 200SP is a scalable and extremely flexible modular I/O system with degree of protection IP20.

As I/O modules, the ET 200SP motor starters are an integral part of this I/O system. They are switching and protection devices for 1- and 3-phase loads and are available as direct-on-line or reversing starters.




Video: SIMATIC ET 200SP motor starter - Flexible, powerful, space-saving

Basic functionality

All versions of the ET 200SP motor starter feature the following functionality:

- Fully pre-wired motor starters for switching and protecting any AC loads up to 5.5 kW from 48 V AC to 500 V AC
- Disconnection possible via fail-safe motor starters up to SIL 3 and PL e Cat. 4
- With self-assembling 32 A power bus, i.e. the load voltage is only fed in once for a group of motor starters
- All supply voltages connected only once, i.e. when modules are added, they are automatically connected to the next module
- Hot swapping is permissible
- Digital inputs can optionally be used via a 3DI/LC module
- Control of the motor starter from the control system and of the diagnostics status via the cyclic process image
- Diagnostics capability for active monitoring of the switching and protection functions
- The signal states in the process image of the motor starter provide information about protective devices (short circuit or overload), the switching states of the motor starter, and system faults.

Starter kit

The 3RK1908-1SK00 starter kit is a favorably priced complete package for switching and monitoring motors in the ET 200SP system, see page 8/102.

It contains:

- A 3RK1308-0BC00-0CP0 reversing starter (0.9 to 3 A)
- A 3RK1908-0AP00-0AP0 BaseUnit with 500 V and 24 V AC/DC infeed
- An EMC distance module (consisting of 6ES7193-6BP00-0BA0 BaseUnit plus 6ES7133-6CV15-1AM0 BU cover 15 mm)

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Use of fan

For motor starters with a 12 A rated current, the 3RW4928-8VB00 fan is included in the scope of supply.

This fan can also be ordered as an option for motor starters with lower rated currents, if the boundary conditions demand this. For information on the ambient conditions for the use of motor starters, see chapter "Product features" in the Equipment Manual.

Designing interference-free motor starters

For interference-free operation of the ET 200SP station in accordance with IEC 60947-4-2 standard, use a dummy module before the first motor starter. The dummy module consists of the 6ES7193-6BP00-0BA0 or 6ES7193-6BP00-0DA0 BaseUnit and the 6ES7133-6CV15-1AM0 BU cover 15 mm.

The 15 mm BU cover protects the plug contacts of the BaseUnit against dirt.

Electromechanical switching devices in series with hybrid motor starters

Switching an inductive load - in particular of motors <1 kW with high inductance - with an electromechanical switching device (e.g. contactor) can cause high and steep voltage edges.

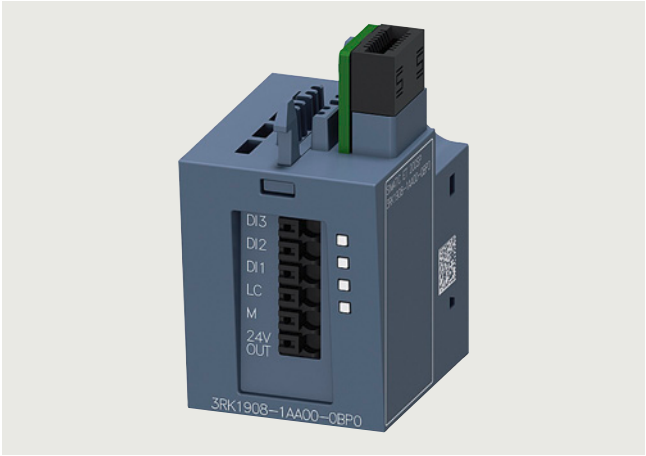
The resulting faults/damage can be prevented by first disconnecting with the hybrid motor starter or by using EMC suppression modules:

- For 3RT2916-1P.. EMC suppression modules for direct mounting on the contactor, see page 3/113
- For motor suppression modules that are fitted in the main circuit, see page 8/102

Note:

For more information, see https://support.industry.siemens.com/cs/ww/en/view/109758696.

***3DI/LC control module***

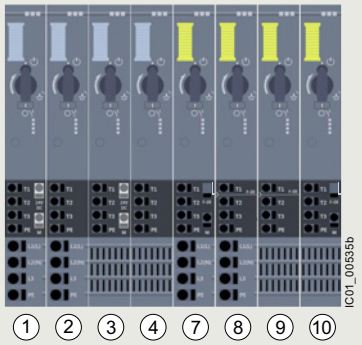



3DI/LC control module

This is a digital input module with three inputs for local motor starter functions such as "manual local control", "implementation of fast inputs" or "end position disconnection". For a list of all the functions permitted by the 3DI/LC module, see chapter "Functions" in the Equipment Manual.

The module is plugged into the front of the motor starter from which it is supplied with a 24 V DC operational voltage.

***BaseUnits for motor starters***




View of the BaseUnit infeeds for the motor starters

BaseUnits are components used for mounting the ET 200SP I/O modules.

The self-assembling voltage buses integrated into the BaseUnits reduce wiring outlay to the single infeed (both of auxiliary and load voltage).

All modules following on the right are automatically supplied upon plugging the BaseUnits together, if BaseUnits are inserted with a loop-through.

The rugged design and keyed connection technology enables use in harsh industrial conditions.

The BaseUnits are available with various infeeds for the motor starters.

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## ET 200SP motor starters

*Article number schemes*

| Product versions | | Article number | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Motor starters** | | **3RK1308** | **–** | **0** | **□** | **□** | **0** | **0** | **–** | **0** | **C** | **P** | **0** | |
| Product function | Direct-on-line starters | | | | **A** | | | | | | | | | For motor standard output 0.09 ... 5.5 kW[1] |
| | Reversing starters | | | | **B** | | | | | | | | | For motor standard output 0.09 ... 5.5 kW[1] |
| | Fail-safe direct-on-line starters | | | | **C** | | | | | | | | | For motor standard output 0.09 ... 5.5 kW[1] |
| | Fail-safe reversing starters | | | | **D** | | | | | | | | | For motor standard output 0.09 ... 5.5 kW[1] |
| Current range | 0.1 ... 0.4 A | | | | | **A** | | | | | | | | Maximum current-carrying capacity when starting 4 A |
| | 0.3 ... 1 A | | | | | **B** | | | | | | | | Maximum current-carrying capacity when starting 10 A |
| | 0.9 ... 3 A | | | | | **C** | | | | | | | | Maximum current-carrying capacity when starting 30 A |
| | 2.8 ... 9 A | | | | | **D** | | | | | | | | Maximum current-carrying capacity when starting 90 A |
| | 4 ... 12 A | | | | | **E** | | | | | | | | Including fan (3RW4928-8VB00), maximum current-carrying capacity when starting 100 A |
| Example | | **3RK1308** | **–** | **0** | **A** | **D** | **0** | **0** | **–** | **0** | **C** | **P** | **0** | |

[1] For standard motors: 1-phase or 3-phase asynchronous motors, 1-phase AC motors, 1-phase asynchronous motors, at 400 V AC and 500 V AC; the actual starting and rated data of the motor to be protected must be considered when selecting the units.

| Product versions | | Article number | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BaseUnit** | | **3RK1908** | **–** | **0** | **A** | **P** | **0** | **0** | **–** | **0** | **□** | **P** | **0** | |
| BU infeed | 24 V DC and 500 V AC | | | | | | | | | | **A** | | | |
| | 24 V DC | | | | | | | | | | **B** | | | |
| | 500 V AC | | | | | | | | | | **C** | | | |
| | Without infeed | | | | | | | | | | **D** | | | |
| | 500 V AC | | | | | | | | | | **G** | | | With F-DI infeed |
| | 500 V AC | | | | | | | | | | **H** | | | With F-DI loop-through |
| | Without infeed | | | | | | | | | | **J** | | | With F-DI loop-through |
| | Without infeed | | | | | | | | | | **K** | | | With F-DI infeed |
| Example | | **3RK1908** | **–** | **0** | **A** | **P** | **0** | **0** | **–** | **0** | **A** | **P** | **0** | |

Note:

The article number schemes show an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

### Benefits

The ET 200SP motor starters offer a number of advantages:

- Fully integrated into the ET 200SP I/O system (including TIA Selection Tool and TIA Portal)
- High degree of flexibility when it comes to safety applications via SIMATIC F-CPU or 3SK safety relays up to SIL 3 and PL e Cat. 4.
- Simple, integrated current value transmission
- Extensive parameterization by means of TIA Portal
- Increase of plant availability through fast replacement of units (easy mounting and plug-in technology)
- Greater endurance and reduced heat losses thanks to hybrid technology
- Less space required in the control cabinet (20 to 80%) as a result of greater functional density (direct-on-line and reversing starters in same width)
- Extensive diagnostics and information for preventive maintenance
- Parameterizable inputs via 3DI/LC control module
- Less wiring and testing required as a result of integrating several functions into a single device
- Lower overheads for stock keeping and configuration as a result of the wide setting range of the electronic overload release (up to 1:3)
- Technology has lower inherent power losses than speed-controlled drive systems, so that less cooling (and smaller footprint) are possible
- The ET 200SP motor starters can be used with highly efficient IE3 and IE4 motors, see Application Manual.
  Take the current characteristics of the connected motor and motor starter into account when dimensioning.
  In addition to the rated current, the maximum permissible current range of the motor starter and the ratio of the rated current to the starting current of the motor are relevant.
  For more information, see page 1/8.

#### *Standards and approvals*

- IEC/EN 60947-4-2
- UL 60947-4-2
- CSA
- ATEX
- IEC 62061: SIL 3
- ISO 13849-1: PL e
- CCC approval for China

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## Application

The ET 200SP motor starters are suitable for the following applications:

- Switching and monitoring of
  - 3-phase motors with overload and short-circuit protection (e.g. 400 V asynchronous motors for secondary drives in conveyor systems)
  - 1-phase motors with overload and short-circuit protection (e.g. 230 V motors for pump applications)
  - Resistive loads by means of current value and diagnostics via the maintenance function (e.g. for heaters)
- Plant monitoring and energy management in conveyor systems:
  By means of the phase asymmetry and zero current detection during current measurement, drive belt monitoring and blocking monitoring are possible, for example.
- Track switching and lifting table control in conveyor systems:
  Track switches can be implemented by means of the quick stop function and lifting table controls by means of the "immediate end position disconnection" function without any laborious programming.
- Safe isolation of drive from main power supply:
  The isolating functions in accordance with IEC 60947-1 offer protection against inadvertent activation during plant maintenance.

Motor starters in the process industry

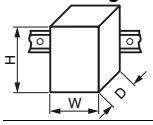
For the ET 200SP motor starters, special 3RK1908-0AP00-0.H0 BaseUnits are available that enable the devices to also be used in the ET 200SP HA I/O system. This is typically used in process engineering applications.

For more information, see https://mall.industry.siemens.com/mall/ww/en/Catalog/Products/10398144?tree=CatalogTree.

## Technical specifications

| More information | |
|---|---|
| Industry Mall, see www.siemens.com/product?3RK1308<br>Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109479973 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/21800/faq |

### *ET 200SP motor starters*

| Article number | | 3RK1308-0.A00-0CP0 | 3RK1308-0.B00-0CP0 | 3RK1308-0.C00-0CP0 | 3RK1308-0.D00-0CP0 | 3RK1308-0.E00-0CP0 |
|---|---|---|---|---|---|---|
| **Product category** | | **Motor starters** | | | | |
| **General technical specifications** | | | | | | |
| **Width x height x depth** | mm | 30 x 142 x 150 | | | | |
|  | | | | | | |
| **Design of the switching contact** | | Hybrid | | | | |
| **Design of the motor protection** | | Electronic | | | | |
| **Installation altitude at height above sea level, maximum** | m | 4 000, derating, see Manual | | | | |
| **Mounting position** | | Vertical, horizontal, (observe derating) | | | | |
| **Type of mounting** | | Can be plugged into BaseUnit | | | | |
| **Ambient temperature** | | | | | | |
| • During operation | °C | -25 ... +60 | | | | |
| • During transport | °C | -40 ... +70 | | | | |
| • During storage | °C | -40 ... +70 | | | | |
| **Relative humidity during operation** | % | 10 ... 95 | | | | |
| **Vibration resistance** | | 15 mm up to 6 Hz; 2 *g* up to 500 Hz | | | | |
| **Shock resistance** | | 6 *g*/11 ms | | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | | | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe | | | | |
| **Type of coordination** | | 1 | | | | |
| **Electrical specifications** | | | | | | |
| **Supply voltage at DC rated value** | V | 24 | | | | |
| **Operational power for AC-53a at 400 V rated value** | kW | 0.12 | 0.25 | 1.1 | 4 | 5.5 |
| **Operating frequency, rated value** | Hz | 50 ... 60 | | | | |
| **Ultimate short-circuit current breaking capacity ($I_{cu}$)** | | | | | | |
| • At 400 V rated value | kA | 55 | | | | |
| • At 500 V rated value | kA | 55 | | | | |
| **Adjustable current response value of the inverse-time delayed overload release** | A | 0.1 ... 0.4 | 0.3 ... 1 | 0.9 ... 3 | 2.8 ... 9 | 4 ... 12 |
| **Max. current-carrying capacity on starting** | A | 4 | 10 | 30 | 90 | 100 |
| **Max. permissible voltage for protective separation between main and auxiliary circuit** | V | 500 | | | | |
| **Insulation voltage, rated value** | V | 500 | | | | |
| **Trip class** | | CLASS OFF/5/10 can be set | | | | |

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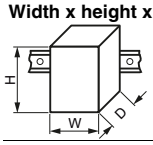
## ET 200SP motor starters

### *BaseUnits for motor starters*

| Article number | | 3RK1908-0AP00-0AP0 | 3RK1908-0AP00-0BP0 | 3RK1908-0AP00-0CP0<br>3RK1908-0AP00-0GP0<br>3RK1908-0AP00-0HP0 | 3RK1908-0AP00-0DP0<br>3RK1908-0AP00-0JP0<br>3RK1908-0AP00-0KP0 |
|---|---|---|---|---|---|
| **Product designation** | | **BaseUnit** | | | |
| **General technical specifications** | | | | | |
| **Width x height x depth** | mm | 30 x 215 x 75 | | | |
|  | | | | | |
| **Ambient temperature** | | | | | |
| • During operation | °C | -25 ... +60 | | | |
| • During transport | °C | -40 ... +70 | | | |
| • During storage | °C | -40 ... +70 | | | |
| **Degree of protection IP on the front** according to IEC 60529 | | IP20 | | | |
| **Touch protection on the front** according to IEC 60529 | | Finger-safe | | | |
| **Connections/terminals** | | | | | |
| **Type of connectable conductor cross-sections** | | | | | |
| • At the inputs for supply voltage | | | | | |
| - Solid | | 1 x 0.5 ... 2.5 $mm^2$ | | -- | |
| - Finely stranded with end sleeve | | 1 x 0.5 ... 2.5 $mm^2$ | | -- | |
| - Finely stranded without end sleeve | | 1 x 0.5 ... 2.5 $mm^2$ | | -- | |
| - Solid for AWG cables | | 1 x 20 ... 12 | | -- | |
| • For infeed | | | | | |
| - Solid | | 1 x 1 ... 6 $mm^2$ | -- | 1 x 1 ... 6 $mm^2$ | -- |
| - Finely stranded with end sleeve | | 1 x 1 ... 6 $mm^2$ | -- | 1 x 1 ... 6 $mm^2$ | -- |
| - Finely stranded without end sleeve | | 1 x 1 ... 6 $mm^2$ | -- | 1 x 1 ... 6 $mm^2$ | -- |
| - For AWG cables | | 1 x 18 ... 10 | -- | 1 x 18 ... 10 | -- |
| • For load-side outgoing feeder | | | | | |
| - Solid | | 1 x 0.5 ... 2.5 $mm^2$ | | | |
| - Finely stranded with end sleeve | | 1 x 0.5 ... 2.5 $mm^2$ | | | |
| - Finely stranded without end sleeve | | 1 x 0.5 ... 2.5 $mm^2$ | | | |
| - For AWG cables | | 1 x 20 ... 12 | | | |
| **Type of electrical connection for auxiliary and control circuits** | | Spring-loaded terminals (push-in) | | | |
| **Miscellaneous** | | | | | |
| **Type of screwdriver tip** | | Slotted | | | |
| **Size of screwdriver tip** | | Standard screwdriver 0.6 mm x 3.5 mm | | | |

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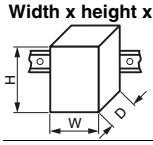
### *3DI/LC control module*

| Article number | | 3RK1908-1AA00-0BP0 |
|---|---|---|
| **Product designation** | | **3DI/LC control module** |
| **General technical specifications** | | |
| **Width x height x depth** | mm | 30 x 54.5 x 42.3 |
|  | | |
| **Product version** | | Accessories |
| **Number of digital inputs** | | 4 |
| **Installation altitude at height above sea level, maximum** | m | 2 000 |
| **Mounting position** | | Vertical, horizontal, flat |
| **Type of mounting** | | Can be plugged onto motor starter |
| **Ambient temperature** | | |
| • During operation | °C | -25 ... +60 |
| • During transport | °C | -40 ... +70 |
| • During storage | °C | -40 ... +70 |
| **Connections/terminals** | | |
| **Connectable conductor cross-section for auxiliary contacts** | | |
| • Solid or stranded | $mm^2$ | 0.2 ... 1.5 |
| • Finely stranded with end sleeve | $mm^2$ | 0.25 ... 1.5 |
| • Finely stranded without end sleeve | $mm^2$ | 0.2 ... 1.5 |
| **AWG number as coded connectable conductor cross-section for auxiliary contacts** | | 24 ... 16 |
| **Type of electrical connection for auxiliary and control circuits** | | Spring-loaded terminals (push-in) |
| **Electrical specifications** | | |
| **Type of voltage of the control supply voltage** | | DC |
| **Control supply voltage at DC rated value** | V | 20.4 ... 28.8 |
| **Miscellaneous** | | |
| **Type of screwdriver tip** | | Slotted |
| **Size of screwdriver tip** | | Standard screwdriver 0.6 mm x 3.5 mm |

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## ET 200SP motor starters *IE3/IE4* ready

### Selection and ordering data

| | Adjustable current response value of the inverse-time delayed overload release | Max. current-carrying capacity on starting | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | A | A | | | | | |
| **Motor starters** | | | | | | | |
| | ***Direct-on-line starters*** | | | | | | |
| 3RK1308-0AB00-0CP0 | 0.1 ... 0.4 | 4 | **3RK1308-0AA00-0CP0** | | 1 | 1 unit | 42D |
| | 0.3 ... 1 | 10 | **3RK1308-0AB00-0CP0** | | 1 | 1 unit | 42D |
| | 0.9 ... 3 | 30 | **3RK1308-0AC00-0CP0** | | 1 | 1 unit | 42D |
| | 2.8 ... 9 | 90 | **3RK1308-0AD00-0CP0** | | 1 | 1 unit | 42D |
| | 4 ... 12 | 100 | **3RK1308-0AE00-0CP0** | | 1 | 1 unit | 42D |
| | ***Reversing starters*** | | | | | | |
| 3RK1308-0BB00-0CP0 | 0.1 ... 0.4 | 4 | **3RK1308-0BA00-0CP0** | | 1 | 1 unit | 42D |
| | 0.3 ... 1 | 10 | **3RK1308-0BB00-0CP0** | | 1 | 1 unit | 42D |
| | 0.9 ... 3 | 30 | **3RK1308-0BC00-0CP0** | | 1 | 1 unit | 42D |
| | 2.8 ... 9 | 90 | **3RK1308-0BD00-0CP0** | | 1 | 1 unit | 42D |
| | 4 ... 12 | 100 | **3RK1308-0BE00-0CP0** | | 1 | 1 unit | 42D |
| | ***Fail-safe direct-on-line starters*** | | | | | | |
| 3RK1308-0CE00-0CP0 | 0.1 ... 0.4 | 4 | **3RK1308-0CA00-0CP0** | | 1 | 1 unit | 42D |
| | 0.3 ... 1 | 10 | **3RK1308-0CB00-0CP0** | | 1 | 1 unit | 42D |
| | 0.9 ... 3 | 30 | **3RK1308-0CC00-0CP0** | | 1 | 1 unit | 42D |
| | 2.8 ... 9 | 90 | **3RK1308-0CD00-0CP0** | | 1 | 1 unit | 42D |
| | 4 ... 12 | 100 | **3RK1308-0CE00-0CP0** | | 1 | 1 unit | 42D |
| | ***Fail-safe reversing starters*** | | | | | | |
| 3RK1308-0DE00-0CP0 | 0.1 ... 0.4 | 4 | **3RK1308-0DA00-0CP0** | | 1 | 1 unit | 42D |
| | 0.3 ... 1 | 10 | **3RK1308-0DB00-0CP0** | | 1 | 1 unit | 42D |
| | 0.9 ... 3 | 30 | **3RK1308-0DC00-0CP0** | | 1 | 1 unit | 42D |
| | 2.8 ... 9 | 90 | **3RK1308-0DD00-0CP0** | | 1 | 1 unit | 42D |
| | 4 ... 12 | 100 | **3RK1308-0DE00-0CP0** | | 1 | 1 unit | 42D |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Product version | Operational voltage of AC infeed | Supply voltage of DC infeed | Push-in terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | V | | | | | |
| **BaseUnits**[1] | | | | | | | | |
| | ***For motor starters*** | | | | | | | |
| | • With AC/DC infeed | 500 | 24 | **3RK1908-0AP00-0AP0** | | 1 | 1 unit | 42D |
| | • With DC infeed | -- | 24 | **3RK1908-0AP00-0BP0** | | 1 | 1 unit | 42D |
| | • With AC infeed | 500 | -- | **3RK1908-0AP00-0CP0** | | 1 | 1 unit | 42D |
| | • Without infeed | -- | -- | **3RK1908-0AP00-0DP0** | | 1 | 1 unit | 42D |
| | ***For fail-safe motor starters*** | | | | | | | |
| | • With AC infeed, with F-DI infeed | 500 | -- | **3RK1908-0AP00-0GP0** | | 1 | 1 unit | 42D |
| 3RK1908-0AP00-0AP0 | • With AC infeed, with F-DI loop-through | 500 | -- | **3RK1908-0AP00-0HP0** | | 1 | 1 unit | 42D |
| | • Without AC/DC infeed, with F-DI loop-through | -- | -- | **3RK1908-0AP00-0JP0** | | 1 | 1 unit | 42D |
| | • Without AC/DC infeed, with F-DI infeed | -- | -- | **3RK1908-0AP00-0KP0** | | 1 | 1 unit | 42D |

[1] The voltage is looped-through from BaseUnits with infeed to subsequent BaseUnits without infeed.

| | Product version | Supply voltage at DC rated value | Loop through the potential group from the left | Push-in terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **BaseUnits** | | | | | | | | |
| | ***For dummy modules*** | | | | | | | |
| | • Dark, looping through the potential group | 24 | Yes | **6ES7193-6BP00-0BA0** | | 1 | 1 unit | 255 |
| 6ES7193-6BP00-0BA0 | • Light, opening a new potential group | 24 | No | **6ES7193-6BP00-0DA0** | | 1 | 1 unit | 255 |

| | Control supply voltage at DC rated value | Product function | | Push-in terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | local control | digital inputs parameterizable | | | | | |
| | V | | | | | | | |
| **3DI/LC control module** | | | | | | | | |
| | 20.4 ... 28.8 | Yes | Yes | **3RK1908-1AA00-0BP0** | | 1 | 1 unit | 42D |
| 3RK1908-1AA00-0BP0 | | | | | | | | |

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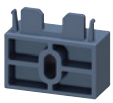
## ET 200SP motor starters



| | Product designation | Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Accessories** | | | | | | | |
| 6ES7133-6CV15-1AM0 | **BU cover 15 mm** | For BaseUnits Type A0 or A1 | **6ES7133-6CV15-1AM0** | | 1 | 5 units | 255 |
| 3RK1908-1CA00-0BP0 | **BU cover 30 mm** | For protection of empty slots, 30 mm | **3RK1908-1CA00-0BP0** | | 1 | 1 unit | 42D |
| 3RK1908-1DA00-2BP0 | **Covers Infeed bus** (1 bag containing 10 covers) | For ET 200SP | **3RK1908-1DA00-2BP0** | | 1 | 1 unit | 42D |
|  3RK1908-1EA00-1BP0 | **Additional mounting base unit** (1 bag containing 5 additional mounting base units) | Mechanical, for ET 200SP | **3RK1908-1EA00-1BP0** | | 1 | 1 unit | 42D |
| 3RW4928-8VB00 | **Fan** | Can be used for 3RK1308 | **3RW4928-8VB00** | | 1 | 1 unit | 42G |
| | **Motor suppression module** | | | | | | |
| 3RK1911-6EA00 | • Square | | **3RK1911-6EA00** | | 1 | 1 unit | 42D |
| 3RK1911-6EB00 | • Round | | **3RK1911-6EB00** | | 1 | 1 unit | 42D |
| 3RK1908-1SK00 | **Starter kit** | Consists of 3RK1308-0BC00-0CP0 reversing starter (0.9 ... 3 A), 3RK1908-0AP00-0AP0 BaseUnit with 500 V and 24 V AC/DC infeed, and EMC distance module (consisting of 6ES7193-6BP00-0BA0 BaseUnit plus 6ES7133-6CV15-1AM0 BU cover 15 mm) | **3RK1908-1SK00** | | 1 | 1 unit | 42D |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | |
|---|---|
| | **Price groups** |
| | PG 241, 250, 368, 41J, 42C, 42D, 5K1, 5K2 |
| 9/2 | **Introduction** |
| | **ET 200pro motor starters** |
| 9/3 | General data |
| 9/8 | Standard motor starters |
| 9/9 | High Feature motor starters |
| 9/10 | ET 200pro isolator modules |
| | ET 200pro Safety motor starters Solution PROFIsafe |
| 9/11 | - Safety modules PROFIsafe |
| 9/13 | Accessories for ET 200pro motor starters |
| | Software |
| 9/18 | Motor Starter ES |
| | **SIRIUS M200D motor starters** |
| 9/19 | General data |
| | M200D motor starters for AS-Interface |
| 9/21 | General data |
| 9/25 | M200D Basic motor starters |
| 9/26 | M200D Standard motor starters |
| | M200D motor starters for PROFIBUS/PROFINET |
| 9/27 | General data |
| 9/33 | Communications modules, motor starter modules |
| | Software |
| 9/34 | Motor Starter ES |
| | Accessories |
| 9/35 | For all M200D motor starters |
| 9/40 | For M200D motor starters for AS-Interface |
| 9/42 | For M200D motor starters for PROFIBUS |
| 9/43 | For M200D motor starters for PROFINET |

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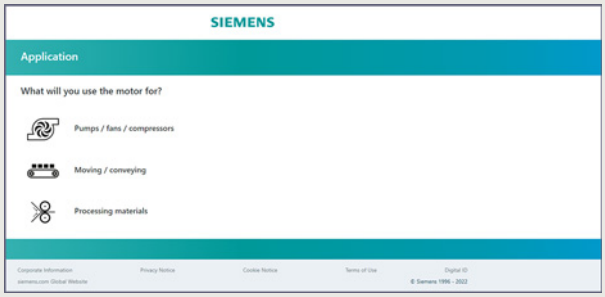
## Introduction

### Overview

***Flexible and cost-efficient distributed starter solutions***

Be it their high degree of protection, compact design or integrated multifunctionality – our motor starters and soft starters for use in the field are ideal for realizing distributed drive solutions. The modular concepts, distributed power supply and integrated safety technology of our portfolio for a high degree of protection consistently supports current trends in drive technology.

***Decision support for motor start – Starting and operating three-phase asynchronous motors efficiently***




Decision support tool for motor start

This tool guides you to the optimum individual drive solution via a short query about the application.

Based on this solution approach, you will then be directed to the right product configurator for selecting the appropriate products, see www.siemens.com/motorstart-guide.

3RK1304

3RK1315

| | | Type | Page |
|---|---|---|---|
| **ET 200pro motor starters** | | | |
| **Motor starters in the SIMATIC ET 200pro I/O system up to 5.5 kW** | | | |
| Standard motor starters | | **3RK1304** | 9/8 |
| High Feature motor starters | | **3RK1304** | 9/9 |
| ET 200pro isolator modules | • With switch disconnector function for safe disconnection | **3RK1304** | 9/10 |
| Safety modules PROFIsafe | • F-Switch PROFIsafe | **6ES7148** | 9/11 |
| | • 400 V disconnecting module | **3RK1304** | 9/11 |
| Accessories for ET 200pro motor starters | • Incoming power supply, power loop-through connection on the field device, motor cable, power bus with power terminal connectors | **3RK19** | 9/13 |
| ET 200pro – interface modules | • For communication with PROFIBUS, PROFINET and IWLAN | **6ES71** | ST 70 |
| ET 200pro – CPUs | • Standard CPUs, fail-safe CPUs | **6ES71** | ST 70 |
| ET 200pro – I/O modules | • Digital/analog expansion modules, fail-safe expansion modules, power modules, ET 200pro pneumatic interfaces | **6ES71** | ST 70 |
| ET 200pro PS | • Stabilized power supplies | **6ES7148** | ST 70 |
| ET 200pro FC-2 frequency converters | | **6SL35** | D 31.2 |
| ET 200pro add-on products | • Modules for EtherNet/IP | **ZNX:EIP** | ST 70 |
| **SIRIUS M200D motor starters** | | | |
| **Distributed motor starters up to 5.5 kW** | | | |
| M200D AS-i Basic motor starters | | **3RK1315** | 9/25 |
| M200D AS-i Standard motor starters | | **3RK1325** | 9/26 |
| M200D communications modules for PROFIBUS | | **3RK1305** | 9/33 |
| M200D communications modules for PROFINET | | **3RK1335** | 9/33 |
| M200D motor starter modules | | **3RK1395** | 9/33 |
| Accessories | • Incoming power supply, motor cable, power bus with power terminal connectors | **3RK1911** | 9/37 |
| | • Motor control with I/O communication | **3RK1902** | 9/39 |
| | • Motor control with AS-i communication | **3RK1902** | 9/40 |
| | • Motor control with PROFIBUS | **3RK1902** | 9/42 |
| | • Motor control with PROFINET | **3RK1902** | 9/43 |

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## Overview

### *ET 200pro motor starters in ET 200pro I/O system*

SIMATIC ET 200pro is the modular I/O system with high degree of protection IP65/66/67 for local, cabinet-free use. The ET 200pro motor starters with the high degree of protection IP65 are an integral part of ET 200pro.

ET 200pro motor starter: Isolator module, Standard starter and High Feature starter mounted on a wide module rack

### *ET 200pro motor starters* (see pages 9/8 and 9/9)

- Only two versions up to 5.5 kW
- All settings can be parameterized by bus
- Comprehensive diagnostic messages
- Support for PROFIenergy
- Overload can be acknowledged by Remote RESET
- Current asymmetry monitoring
- Stall protection
- EMERGENCY START function on overload
- Current value transmission by bus
- Current limit monitoring
- Full support of acyclic services
- Direct-on-line or reversing starters
- Power bus connection can be plugged in using Han Q4/2 plug-in connectors
- Motor feeder with Han Q8/0 connector
- Conductor cross-sections up to 6 x 4 $mm^2$
- 25 A per segment (power looped through using jumper plug)
- In the Standard and High Feature versions (with 4 DI on-board)
- Electromechanical switching and electronic switching
- Electronic starter for direct activation or with integrated soft starter function
- Supplied with 400 V AC brake contact as an option
- Temperature sensor can be connected (Thermoclick or PTC type A)
- Provision of the motor current in PROFIenergy format to higher-level systems, motor current shutdown in dead times using PROFIenergy

**More information**

Homepage, see www.siemens.com/sirius-motor-starter-et200pro

Industry Mall, see www.siemens.com/product?ET200pro

Decision support for motor start – Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide

Further components in the ET 200pro distributed I/O system:
- Interface modules, central processing units, I/O modules, ET 200pro PS, see Catalog ST 70
- ET 200pro FC-2 frequency converters, see Catalog D 31.2

### *ET 200pro isolator modules* (see page 9/10)

The isolator module with switch disconnector function is used for safe disconnection of the 400 V operational voltage during repair work in the plant and provides an integrated group fusing function (i.e. additional group short-circuit protection for all subsequently supplied motor starters).

Depending on the power distribution concept, all stations can be equipped with an isolator module as an option.

### *Safety applications*

Safety Solution PROFIsafe (see page 9/11)

With the Safety modules PROFIsafe
- F-Switch and
- 400 V disconnecting module

with an appropriate connection, safety levels SIL 3 (according to IEC 62061) or PL e (according to ISO 13849-1) can also be reached.

### *Functionality*

With the ET 200pro motor starters, any AC loads can be protected and switched.

The ET 200pro motor starters are available both with mechanical as well as electronic contacts.

The ET 200pro electromechanical starters are offered as direct-on-line starters (DSe) and reversing starters (RSe) as **Standard** and **High Feature** versions. There are device versions with or without control for externally supplied brakes with 400 V AC.

Compared with the Standard motor starters, the **High Feature, mechanical** motor starter also has:
- Four digital inputs
- Advanced parameterization options

The ET 200pro electronic starters are offered as direct-on-line starters (sDSSte/sDSte) and reversing starters (sRSSte/sRSte) in the High Feature version.

Compared with the High Feature mechanical motor starters, the **High Feature electronic** motor starter also has:
- Soft starting and smooth ramp-down function
- Deactivated soft start function as an electronic starter for applications with a high switching frequency
- Advanced parameterization options

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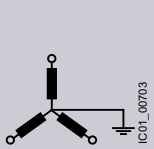
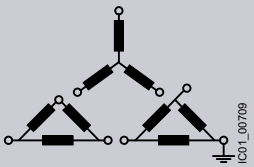
## General data

As a result of the protection concept with solid-state overload evaluation and the use of SIRIUS switching devices, size S00, additional advantages are realized on the Standard and High Feature motor starters – advantages that soon make themselves positively felt particularly in manufacturing processes with high plant stoppage costs:

- Configuration is made easier by the fine modular structure with ET 200pro. When using the ET 200pro motor starters, the parts list per load feeder is reduced to two main items: the bus module and the motor starter. This makes the ET 200pro ideal for modular machine concepts or solutions for conveyor systems and in machine-tool construction.
- Expansions are easily possible through the subsequent adding of modules. The innovative plug-in technology also does away with the wiring needed up to now. Through the hot swapping function (disconnection and connection during operation) a motor starter can be replaced within seconds if necessary, without having to shut down the ET 200pro station and with it the process in the plant. The motor starters are therefore recommendable in particular for applications with special demands on availability. Storage costs are also optimized by the low level of variance (two units up to 5.5 kW).
- With four locally acting inputs available on the High Feature motor starter it is possible to realize autonomous special functions which work independently of the bus and the higher-level control system, e.g. as a quick stop on gate valve controls or limit position disconnectors. In parallel with this, the states of these inputs are signaled to the control system.

Voltage data

The specifications for 3-phase systems according to IEC 60947-4-1 apply for the following line system configurations:

| **Voltage $U_e$** | **Line system configurations** | |
|---|---|---|
| | **Three-phase four-wire systems**   | **Three-phase three-wire systems**   |
| V | V | V |
| 230 | -- | 230 |
| 400 | 230/400 | 400 |
| 440 | 260/440 | 440 |
| 500 | -- | 500 |

-- Not specified

***Article number schemes***

| **Product versions** | | **Article number** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Motor starters** | | **3RK1304** | **–** | **5** | **☐** | **S** | **☐** | **0** | **–** | **☐** | **A** | **A** | **☐** | |
| Setting range | 0.15 ... 2.0 A | | | | **K** | | | | | | | | | |
| | 1.5 ... 12 A | | | | **L** | | | | | | | | | |
| Product function | Direct-on-line starters DSe | | | | | | **4** | | | **4** | | | | Standard |
| | Reversing starters RSe | | | | | | **4** | | | **5** | | | | Standard |
| | Direct-on-line starters DSe | | | | | | **4** | | | **2** | | | | High Feature |
| | Reversing starters RSe | | | | | | **4** | | | **3** | | | | High Feature |
| | Direct-on-line starters sDSSte/sDSte | | | | | | **7** | | | **2** | | | | High Feature |
| | Reversing starters sDSSte/sDSte | | | | | | **7** | | | **3** | | | | High Feature |
| Inputs/outputs | Without brake output | | | | | | | | | | | | **0** | |
| | With brake output | | | | | | | | | | | | **3** | 400 V AC, with High Feature + 4 inputs |
| Example | | **3RK1304** | **–** | **5** | **K** | **S** | **4** | **0** | **–** | **4** | **A** | **A** | **0** | |

| **Product versions** | | **Article number** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Modules** | | **3RK1304** | **–** | **0** | **H** | **S** | **0** | **0** | **–** | **☐** | **A** | **A** | **0** | |
| Product function | Isolator modules | | | | | | | | | **6** | | | | |
| | 400 V disconnecting modules | | | | | | | | | **8** | | | | Safety modules PROFIsafe |
| Example | | **3RK1304** | **–** | **0** | **H** | **S** | **0** | **0** | **–** | **6** | **A** | **A** | **0** | |

Note:

The article number schemes show an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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| Type | | Standard motor starters | High Feature motor starters | |
|---|---|---|---|---|
| **Technology designation[1)]** | | **DSe, RSe** | **DSe, RSe** | **sDSSte, sDSte, sRSSte, sRSte** |
| **Device functions (firmware features)** | | | | |
| **Parameterizable rated operational current** | | ✓ | | |
| **Integrated short-circuit protection** | | ✓ | | |
| **Parameterizable current limit values** | | -- | ✓ 2 limit values | |
| **Parameterizable response in case of current limit violation** | | -- | ✓ | |
| **Zero current monitoring** | | ✓ | | |
| **Parameterizable response in case of zero current violation** | | ✓ | | |
| **Parameterizable current asymmetry limit** | % | -- Fixed limit value (30 x $I_e$) | ✓ 30 ... 60 x $I_e$ | |
| **Parameterizable response in case of asymmetry limit violation** | | ✓ | | |
| **Motor blocking monitoring** | | -- | ✓ | |
| **Parameterizable blocking current limit** | % | -- | ✓ 150 ... 1 000 x $I_e$ | |
| **Parameterizable blocking time limit** | s | -- | ✓ 1 ... 5 | |
| **Current value transmission** | | ✓ | | |
| **Group warning diagnostics** | | -- | ✓ Parameterizable | |
| **Group diagnostics** | | ✓ Parameterizable | | |
| **EMERGENCY START** | | ✓ | | |
| **Digital inputs** | | -- | ✓ 4 inputs | |
| • Parameterizable input signal | | -- | ✓ Latching/non-latching | |
| • Parameterizable input level | | -- | ✓ NC/NO contacts | |
| • Parameterizable input signal delay | ms | -- | ✓ 10 ... 80 | |
| • Parameterizable input signal extension | ms | -- | ✓ 0 ... 200 | |
| • Parameterizable input control actions | | -- | ✓ 12 different actions | |
| **Brake output (400 V AC)** | | ✓ Order option | | |
| **Parameterizable brake enabling delay** | s | ✓ -2.5 ... +2.5 | | |
| **Parameterizable holding time of the brake during stopping** | s | ✓ 0 ... 25 | | |
| **Parameterizable startup type** | | -- | | ✓ |
| **Parameterizable ramp-down time** | | -- | | ✓ |
| **Parameterizable starting voltage** | | -- | | ✓ |
| **Parameterizable stopping voltage** | | -- | | ✓ |
| **Local device interface** | | ✓ | | |
| **Firmware update** | | ✓ By specialists | | |
| **Thermal motor model** | | ✓ | | |
| **Parameterizable trip class** | | -- CLASS 10 fixed | ✓ CLASS 5, 10, 15, 20 | |
| **Parameterizable response in case of overload of thermal motor model** | | -- | ✓ 3 possible states | |
| **Advance warning limit for motor heating** | % | -- | ✓ Parameterizable 0 ... 95 | |
| **Advance warning limit time-related trip reserve** | s | -- | ✓ Parameterizable 0 ... 500 | |
| **Parameterizable recovery time** | min | -- | ✓ 1 ... 30 | |
| **Parameterizable protection against voltage failure** | | -- Permanently integrated | ✓ | |
| **Reversing start function** | | ✓ Order option | | |
| **Parameterizable interlock time for reversing starters** | | -- 150 ms fixed | ✓ 0 ... 60 s | |
| **Integrated logbook functions** | | ✓ 3 device logbooks | | |
| **Integrated statistics data memory** | | ✓ | | |
| **Parameterizable response in case of CPU/master stop** | | ✓ | | |
| **PROFIenergy profile support** | | | | |
| • Disconnection of the motor current during dead times | | ✓ | | |
| • Measured motor current values | | ✓ | | |
| **Device indications** | | | | |
| • Group fault | | SF LED (red) | | |
| • Switching state | | STATE LED (red, yellow, green) | | |
| • Device status | | DEVICE LED (red, yellow, green) | | |
| • Digital inputs | | -- | IN 1 ... IN 4, LED | |

✓ Function available

-- Function not available

1) DS .... Direct-on-line starters
RS .... Reversing starters
DSS .. Direct-on-line soft starters
RSS .. Reversing soft starters
e ..... Electronic motor protection
te ..... Full motor protection (thermal + electronic)
s ..... Electronic switching with semiconductor.

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## General data

### Benefits

ET 200pro motor starters provide the following advantages:

- High flexibility thanks to a modular and compact design
- Little variance among all motor starter versions (two units up to 5.5 kW)
- Extensive parameterization using STEP 7 HW Config
- Increase of plant availability through fast replacement of units (easy mounting and plug-in technology)
- Extensive diagnostics and information for preventive maintenance
- Parameterizable inputs for local control functions (High Feature)
- Cabinet-free design thanks to high degree of protection IP65

### Application

The SIMATIC ET 200pro motor starters are ideal for the use of several spatially concentrated distributed drive solutions in which several motors, or digital or analog sensors and actuators are addressed from a distributed station. They are perfectly suited for protecting and switching any AC loads.

***Application areas***

The SIMATIC ET 200pro motor starters are suitable for numerous sectors of industry, e.g. machinery and plant engineering or conveying applications.

***Use of ET 200pro motor starters in conjunction with IE3 and IE4 motors***

Note:

For the use of ET 200pro motor starters in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

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## Technical specifications

| More information | |
|---|---|
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/22332388 | Notes on security: System networking requires suitable protective measures (including network segmentation for IT security) in order to ensure safe plant operation. For more information on the subject of Industrial Security, see www.siemens.com/industrialsecurity. |

| **Type** | | **Standard motor starters** | **High Feature motor starters** | |
|---|---|---|---|---|
| | | **Mechanical switching without inputs** | **Mechanical switching with inputs** | **Electronic switching with inputs and soft starter function** |
| **Technology designation**[1] | | **DSe, RSe** | **DSe, RSe** | **sDSSte, sDSte, sRSSte, sRSte** |
| **Mechanics and environment** | | | | |
| **Motor starters or modules that can be connected to ET 200pro** With width of 110 mm | | max. 8 | | |
| **Mounting dimensions (W x H x D)** | | | | |
| • Direct-on-line starters and reversing starters | mm | 110 x 230 x 150 | | 110 x 230 x 160 |
| **Permissible ambient temperature** | | | | |
| • During operation | °C | -25 ... +55, from +40 with derating | | |
| • During storage | °C | -40 ... +70 | | |
| **Permissible mounting position** | | Vertical, horizontal | | |
| **Vibration resistance** according to IEC 60068, Part 2-6 | *g* | 2 | | |
| **Shock resistance** according to IEC 60068, Part 2-27 | *g*/ms | Half-sine 15/11 | | |
| **Degree of protection** | | IP65 | | |
| **Pollution degree** | | 3, IEC 60664 (IEC 61131) | | |
| **Electrical specifications** | | | | |
| **Power consumption at 24 V DC** | | | | |
| • From auxiliary circuit L+/M (U1) | mA | Approx. 40 | | |
| • From auxiliary circuit A1/A2 (U2) | mA | Approx. 200 | | |
| **Rated operational current $I_e$ for power bus** | A | 25 | | |
| **Rated operational voltage $U_e$** | V AC | 400 (50/60 Hz) | | |
| • Approval according to EN 60947-1, Annex N | V AC | Up to 400 (50/60 Hz) | | Up to 400 (50/60 Hz) |
| • Approval according to CSA and UL | V AC | Up to 600 (50/60 Hz) | | Up to 480 (50/60 Hz) |
| **Approval** | | | | |
| • DIN VDE 0106, Part 101 | V | Up to 400 | | Up to 480 |
| • CSA and UL approval | V | Up to 600 | | Up to 480 |
| **Conductor cross-sections** | | | | |
| • Incoming power supply | $mm^2$ | Max. 6 x 4 | | |
| **Touch protection** | | Finger-safe | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | | |
| **Rated insulation voltage $U_i$** | V | 400 | | |
| **Rated operational current $I_e$ for starters** | | | | |
| • AC-1/2/3 at 40 °C | | | | |
| - At 400 V | A | 0.15 ... 2.0/1.5 ... 12.0 | | 0.15 ... 2.0/1.5 ... 12.0[2] |
| - At 500 V | A | 0.15 ... 2.0/1.5 ... 9.0 | | |
| • AC-4 at 40 °C | | | | |
| - At 400 V | A | 0.15 ... 2.0/1.5 ... 4.0 | | |
| **Rated short-circuit breaking capacity** | kA | 100 at 400 V | | |
| **Type of coordination** according to IEC 60947-4-1 | | 1 | | |
| **Power of three-phase motors at 400 V** | kW | Max. 5.5 | | Max. 5.5/4[3] |
| **Utilization categories** | | AC-1, AC-3, AC-4 | | AC-53a[4] (max. 9 A with deactivated soft start function up to CLASS 10) |
| **Protective separation between main and auxiliary circuits** | V | 400, according to EN 60947-1, Annex N | | |
| **Endurance of contactor** | | | | |
| • Mechanical | Operating cycles | 30 million | | -- |
| • Electrical | Operating cycles | Up to 10 million; depending on the current loading (see manual) | | -- |
| **Permissible switching frequency** | | Depending on the current loading, motor starting time, and relative ON period (see manual) | | |
| **Operating times** for 0.85 ... 1.1 x $U_e$ | | | | |
| • Closing delay | ms | 11 ... 50 | | -- |
| • Opening delay | ms | 5 ... 45 | | -- |

1) DS .... Direct-on-line starters
RS .... Reversing starters
DSS .. Direct-on-line soft starters
RSS .. Reversing soft starters
e ..... Electronic motor protection
te ..... Full motor protection (thermal + electronic)
s ..... Electronic switching with semiconductor.

2) If the soft starter control function is deactivated, the permissible rated operational current is reduced to 9 A up to CLASS 10.

3) With parameterization as electronic starter max. 4 kW.

4) 8-hour operation.

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## Overview

The functionality, device functions, and technical specifications of the Standard motor starter are described in "ET 200pro motor starters, General data" (see page 9/3 onwards).

## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Standard motor starters, mechanical<br>Motor protection: thermal model** | | | | | |
| <br>DSe Standard | | | | | |
| **Direct-on-line starters DSe**[1] | | | | | |
| • Without brake output | **3RK1304-5□S40-4AA0** | | 1 | 1 unit | 42D |
| • With brake output 400 V AC | **3RK1304-5□S40-4AA3** | | 1 | 1 unit | 42D |
| **Reversing starters RSe**[1] | | | | | |
| • Without brake output | **3RK1304-5□S40-5AA0** | | 1 | 1 unit | 42D |
| • With brake output 400 V AC | **3RK1304-5□S40-5AA3** | | 1 | 1 unit | 42D |
| Setting range<br>Rated operational current | | Add. price | | | |
| • 0.15 ... 2.0 A | K | None | | | |
| • 1.5 ... 12.0 A | L | ✓ | | | |

✓ = Additional price

1) Only functions when used together with the backplane bus module and the wide module rack. The backplane bus module and the wide module rack must be ordered separately (see "Accessories for ET 200pro motor starters", page 9/17).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

The functionality, device functions, and technical specifications of the High Feature motor starter are described in "ET 200pro motor starters, General data" (see page 9/3 onwards).

The High Feature motor starter differs from the Standard motor starter in having more parameters and four integrated, freely-parameterizable digital inputs.

## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **High Feature motor starters, mechanical<br>Motor protection: thermal model** | | | | | |
| <br>RSe High Feature | | | | | |
| **Direct-on-line starters DSe[1]** | | | | | |
| • Without brake output and with 4 inputs | **3RK1304-5□S40-2AA0** | | 1 | 1 unit | 42D |
| • With brake output 400 V AC and 4 inputs | **3RK1304-5□S40-2AA3** | | 1 | 1 unit | 42D |
| **Reversing starters RSe[1]** | | | | | |
| • Without brake output and with 4 inputs | **3RK1304-5□S40-3AA0** | | 1 | 1 unit | 42D |
| • With brake output 400 V AC and 4 inputs | **3RK1304-5□S40-3AA3** | | 1 | 1 unit | 42D |
| Setting range<br>Rated operational current | | Add. price | | | |
| • 0.15 ... 2.0 A | K | None | | | |
| • 1.5 ... 12.0 A | L | ✓ | | | |
| **High Feature motor starters[2], electronic<br>Full motor protection, comprising thermal motor protection and thermistor motor protection** | | | | | |
| <br>sRSSte High Feature | | | | | |
| **Direct-on-line starters sDSSte/sDSte[1][2]** | | | | | |
| • Without brake output and with 4 inputs | **3RK1304-5□S70-2AA0** | | 1 | 1 unit | 42D |
| • With brake output 400 V AC and 4 inputs | **3RK1304-5□S70-2AA3** | | 1 | 1 unit | 42D |
| **Reversing starters sRSSte/sRSte[1][2]** | | | | | |
| • Without brake output and with 4 inputs | **3RK1304-5□S70-3AA0** | | 1 | 1 unit | 42D |
| • With brake output 400 V AC and 4 inputs | **3RK1304-5□S70-3AA3** | | 1 | 1 unit | 42D |
| Setting range<br>Rated operational current | | Add. price | | | |
| • 0.15 ... 2.0 A | K | None | | | |
| • 1.5 ... 12.0 A | L | ✓ | | | |

✓ = Additional price

1) Only functions when used together with the backplane bus module and the wide module rack. The backplane bus module and the wide module rack must be ordered separately (see "Accessories for ET 200pro motor starters", page 9/17).

2) The electronic motor starters can be used not only as electronic motor starters with a high level of switching frequency but also as fully fledged soft starters for soft starting and stopping. The changeover from motor starter to soft starter takes place through reparameterization in HW Config. Depending on the setting, this results in the following current ranges:
- Parameterization as electronic motor starter: 0.15 to 2 A and 1.5 to 9 A (4 kW)
- Parameterization as soft starter: 0.15 to 2 A and 1.5 to 12 A (5.5 kW).

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## ET 200pro isolator modules *IE3/IE4* ready

### Overview

The isolator module with integrated group fusing function (i.e. additional group short-circuit protection for all subsequently supplied motor starters) and switch disconnector function is used for safe disconnection of the 400 V operational voltage during repair work in the plant.

Depending on the power distribution concept, all stations can be equipped with an isolator module as an option.

The following properties apply to the isolator module:

- Increase of plant availability through fast replacement of units (easy mounting and plug-in technology)
- Cabinet-free design thanks to high degree of protection IP65

### Technical specifications

| Type | | Isolator modules |
|---|---|---|
| **General data** | | |
| **Mounting dimensions (W x H x D)** | | |
| • Direct-on-line starters and reversing starters | mm | 110 x 230 x 170 |
| **Permissible ambient temperature** | | |
| • During operation | °C | -25 ... +55 |
| • During storage | °C | -40 ... +70 |
| **Permissible mounting position** | | Any |
| **Vibration resistance according to IEC 60068, Part 2-6** | *g* | 2 |
| **Shock resistance according to IEC 60068, Part 2-27** | *g*/ms | Half-sine 15/11 |
| **Power consumption** | | |
| • From auxiliary circuit L+/M (U1) | mA | Approx. 20 |
| • From auxiliary circuit A1/A2 (U2) | | -- |
| **Rated operational current $I_e$ for power bus** | A | 25 |
| **Rated operational voltage $U_e$** | V | 400 |
| **Approvals according to** | | |
| • DIN VDE 0106, Part 101 | V | Up to 500 |
| • CSA and UL | V | Up to 600 |
| **Conductor cross-sections** | | |
| • Incoming power supply | $mm^2$ | Max. 6 x 4 |

| Type | | Isolator modules |
|---|---|---|
| **Degree of protection** | | IP65 |
| **Touch protection** | | Finger-safe |
| **Pollution degree** | | 3, IEC 60664 (IEC 61131) |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Rated insulation voltage $U_i$** | V | 400 |
| **Rated operational current $I_e$ for starters** | | |
| • AC-1/2/3 at 40 °C | | |
| - At 400 V | A | 25 |
| - At 500 V | A | 25 |
| **Rated short-circuit breaking capacity** | kA | 50 at 400 V |
| **Type of coordination according to IEC 60947-4-1** | | 2 |
| **Protective separation between main and auxiliary circuits** | V | 400, according to DIN VDE 0106, Part 101 |
| **Device functions** | | |
| • Group diagnostics | | Yes, parameterizable |
| **Device indications** | | |
| • Group fault | | SF LED (red) |

### Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **ET 200pro isolator modules, mechanical** | | | | | |
| **Isolator modules**[1]<br>Rated operational current 25 A | **3RK1304-0HS00-6AA0** | | 1 | 1 unit | 42D |

3RK1304-0HS00-6AA0

[1] Only functions when used together with the related 110 mm backplane bus module and the wide module rack. The backplane bus module and the wide module rack must be ordered separately (see page 9/17).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

### *Safety Solution PROFIsafe*

With the Safety modules PROFIsafe
- F-Switch and
- 400 V disconnecting module

with an appropriate connection, safety levels SIL 3 (according to IEC 62061) or PL e (according to ISO 13849-1) can be reached.

### *F-Switch PROFIsafe*

Fail-safe digital inputs/outputs in degrees of protection IP65 to IP67 for near-machine, cabinet-free use.

Fail-safe digital inputs

- For the fail-safe reading in of sensor information (1-/2-channel)
- Including integrated discrepancy evaluation for 2v2 signals
- Internal sensor supplies (incl. testing) available

Fail-safe digital outputs

- Three fail-safe PP-switching outputs for safe switching of the backplane busbars

The F-Switch is certified up to SIL 3/PL e and has detailed diagnostics. It supports PROFIsafe in PROFIBUS configurations as well as in PROFINET configurations.

Note:

Safety characteristics, see page 16/9.

Functionality

The F-Switch PROFIsafe is a fail-safe solid-state module for PROFIsafe safety applications. It has two fail-safe inputs and outputs for safe switching of the 24 V supply over backplane busbars. In combination with the 400 V disconnecting module, fail-safe disconnection of ET 200pro motor starters is possible in PROFIsafe applications up to SIL 3/PL e.

### *400 V disconnecting module*

The 400 V disconnecting module enables the safe disconnection of an operational voltage of 400 V up to SIL 3/PL e. For operation in a Safety PROFIsafe application it functions only in combination with the F-Switch.

Functionality

The 400 V disconnecting module can be used together with the F-Switch for PROFIsafe safety applications. It contains two contactors connected in series for safety-related disconnection of the main circuit. The auxiliary circuit supply of the device is provided via a safety power rail in the backplane bus module. The 400 V disconnecting module can be used in conjunction with the
F-Switch for safety applications up to SIL 3/PL e.

## Technical specifications

| Type | | 400 V disconnecting module |
|---|---|---|
| **General data** | | |
| **Mounting dimensions (W x H x D)** | | |
| • Direct-on-line starters and reversing starters | mm | 110 x 230 x 150 |
| **Permissible ambient temperature** | | |
| • During operation | °C | -25 ... +55 |
| • During storage | °C | -40 ... +70 |
| **Permissible mounting position** | | Any |
| **Vibration resistance according to IEC 60068, Part 2-6** | | 2 *g* |
| **Shock resistance according to IEC 60068, Part 2-27** | | Half-sine 15 *g*/11 ms |
| **Power consumption** | | |
| • From auxiliary circuit L+/M (U1) | mA | Approx. 20 |
| • From auxiliary circuit A1/A2 (U2) | | -- |
| **Rated operational current $I_e$ for power bus** | A | 25 |
| **Rated operational voltage $U_e$** | V | 400 (50/60 Hz) |
| **Approval DIN VDE 0106, Part 101** | V | Up to 500 |
| **CSA and UL approval** | V | Up to 600 |
| **Conductor cross-sections** | | |
| Incoming power supply | $mm^2$ | Max. 6 x 4 |
| **Degree of protection** | | IP65 |
| **Touch protection** | | Finger-safe |
| **Pollution degree** | | 3, IEC 60664 (IEC 61131) |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Rated insulation voltage $U_i$** | V | 400 |
| **Rated operational current $I_e$ for starters** | | |
| • AC-1/2/3 at 40 °C | | |
| - At 400 V | A | 25 |
| - At 500 V | A | 25 |
| **Rated short-circuit breaking capacity** | kA | 50 at 400 V |
| **Type of coordination according to IEC 60947-4-1** | | 2 |
| **Protective separation between main and auxiliary circuits** | V | 400, according to DIN VDE 0106, Part 101 |
| **Operating times for 0.85 ... 1.1 x $U_e$** | | |
| • Closing delay | ms | 25 ... 100 |
| • Opening delay | ms | 7 ... 10 |
| **Device functions** | | |
| • Group diagnostics | | Yes, parameterizable |
| **Device indications** | | |
| • Group fault | | SF LED (red) |

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## Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Safety modules PROFIsafe** | | | | | | |
| 3RK1304-0HS00-8AA0 | **400 V disconnecting module**[1)2)]<br>Rated operational current 25 A | **3RK1304-0HS00-8AA0** | | 1 | 1 unit | 42D |
| 6ES7148-1FS00-0AB0 | **F-Switch PROFIsafe**<br>24 V DC, including bus module<br>Note:<br>Connection module must be ordered separately | **6ES7148-4FS00-0AB0** | | 1 | 1 unit | 241 |
| | **Connection module for F-Switch**<br>24 V DC | **6ES7194-4DA00-0AA0** | | 1 | 1 unit | 241 |

1) The 400 V disconnecting module functions only when used together with the F-Switch PROFIsafe.

2) The 400 V disconnecting module functions only when used together with the backplane bus module and the wide module rack. The backplane bus module and the wide module rack must be ordered separately (see "Accessories for ET 200pro motor starters", page 9/17).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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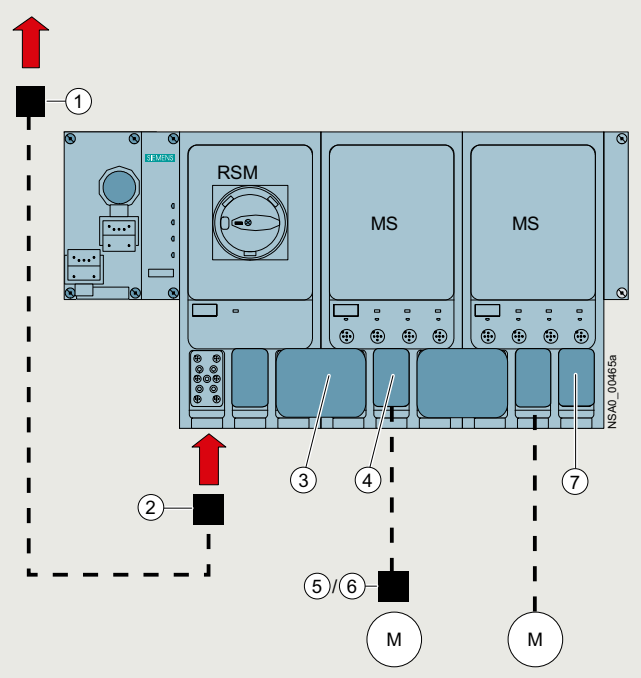
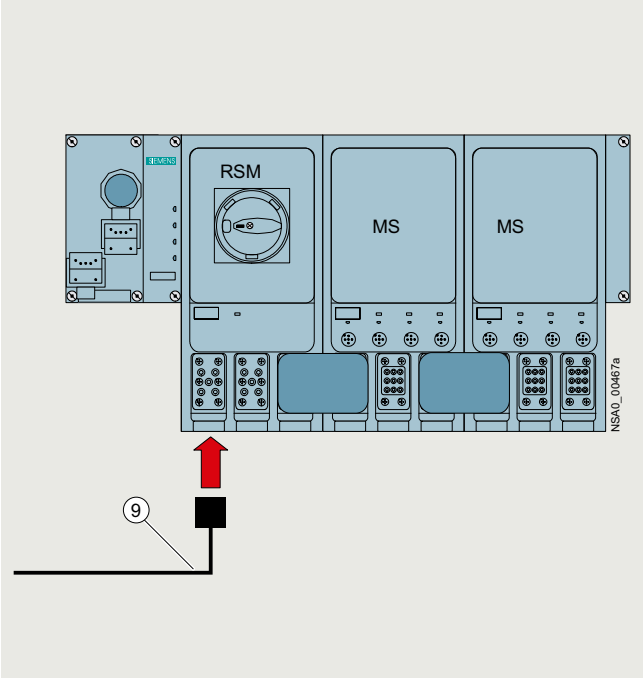
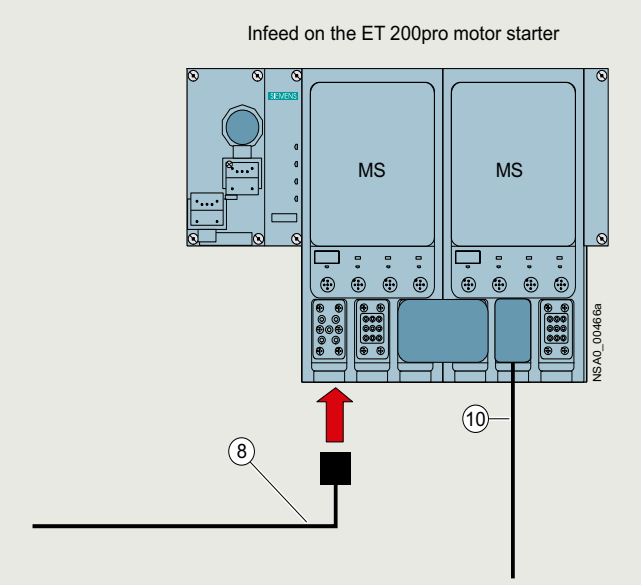
## Overview




Basic design of an ET 200pro version with (from the left) connection module for IM, interface module for communication (IM), RSM isolator module, two ET 200pro motor starters (MS), and connections for energy




Infeed on the RSM isolator module




Infeed on the ET 200pro motor starter

Legend:

① Power feeder plug (see page 9/15)
② Power connection plug (see page 9/15)
③ Power jumper plug (see page 9/15)
④ Motor connection plug (see page 9/15)
⑤ Motor plug (see page 9/15)
⑥ Motor plug with EMC suppressor circuit (see page 9/15)
⑦ Power loop-through plug (see page 9/15)
⑧ Power connecting cable (see page 9/15)
⑨ Power connecting cable for isolator module (see page 9/15)
⑩ Motor cable (see page 9/16)

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## Accessories for ET 200pro motor starters

### *Power bus*

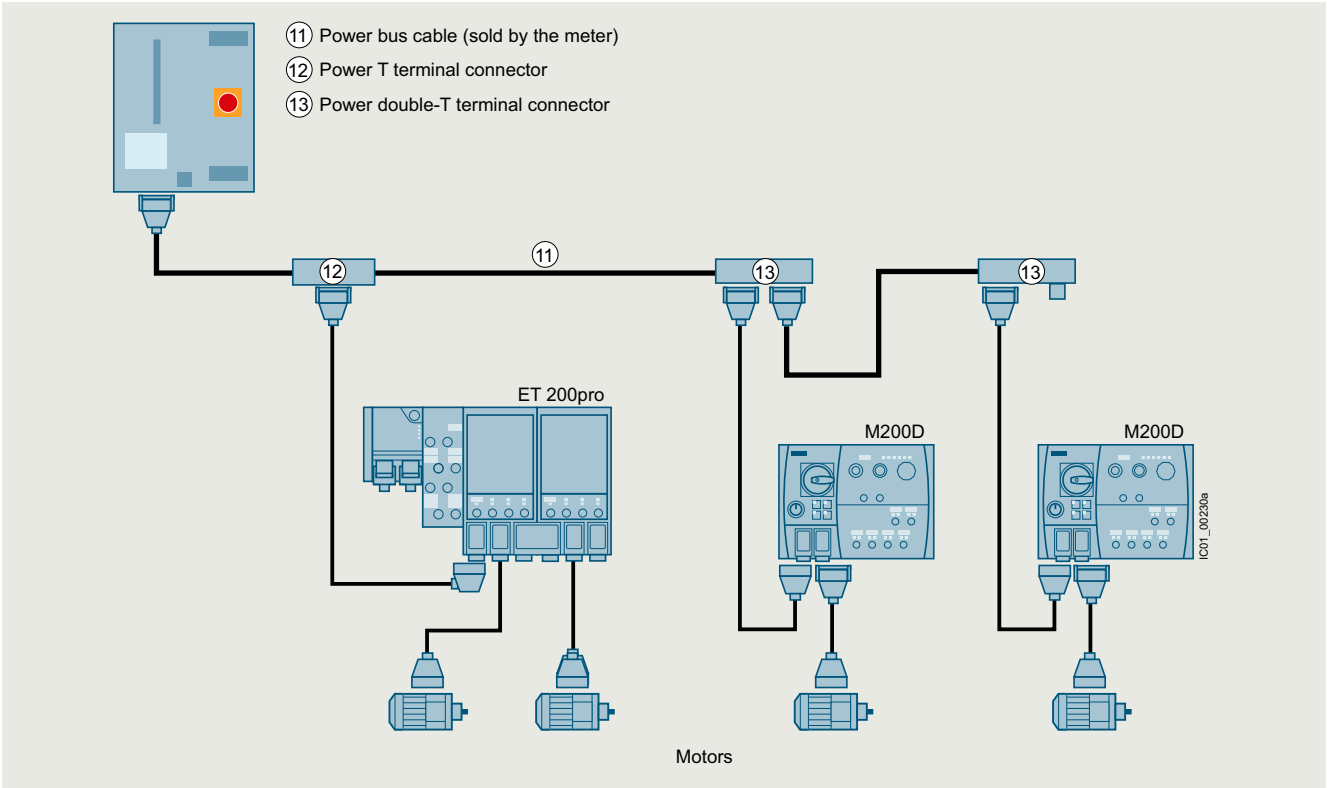
The power supply to the field devices (ET 200pro motor starters, M200D motor starters) is provided via the power bus, in which the power T terminal connectors or power double-T terminal connectors are connected by power bus cables.

### *Feeders*

From the terminal connectors, spur lines with Han Q4/2 plugs lead to the field devices, from which the motors are supplied with power via motor connecting cables.

### *Interruption-free thanks to power terminal connectors*

In finger-safe connection technology the power T terminal connectors and power double-T terminal connectors connect the components of a feeder to the power bus. They ensure interruption-free operation, i.e. when the components are plugged in, the power bus is not interrupted.




Power supply to the motors via the power bus with power T and double-T terminal connectors linked by power bus cables, spur lines to the field devices (motor starters), and power loop-through connections to the motors via motor connecting cables

### *Motor control via PROFIBUS*

The interface modules (IM) for PROFIBUS can be combined with two different connection modules for connecting PROFIBUS DP and the power supply:

- Direct connection with cable gland
- M12, 7/8" connection
  - with M12 connecting cable and M12 plugs for data transmission with PROFIBUS DP
  - with 7/8" connecting cable and 7/8" plugs for the power supply

For connection modules with the relevant accessories, see "Accessories for ET 200pro interface modules" in Catalog ST 70 or the Industry Mall.

### *Motor control via PROFINET*

For connection modules with the relevant accessories, see "Accessories for ET 200pro interface modules" in Catalog ST 70 or the Industry Mall.

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## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Incoming power supply** | | | | | |
| ① **Power feeder plugs**<br>Connector set for energy supply, e.g. for connecting to T terminal connectors, comprising a coupling enclosure, straight outgoing feeder (with bracket), pin insert for HAN Q4/2, incl. gland | | | | | |
| • 5 male contacts, 2.5 $mm^2$ | **3RK1911-2BS60** | | 1 | 1 unit | 42D |
| • 5 male contacts, 4 $mm^2$ | **3RK1911-2BS20** | | 1 | 1 unit | 42D |
| • 5 male contacts, 6 $mm^2$ | **3RK1911-2BS40** | | 1 | 1 unit | 42D |
| ② **Power connection plugs**<br>Connector set for incoming power supply for connection to ET 200pro motor starters/ET 200pro isolator modules, comprising a cable-end connector hood, angled outgoing feeder, female insert for HAN Q4/2, incl. gland | | | | | |
| • 5 female contacts, 2.5 $mm^2$ | **3RK1911-2BE50** | | 1 | 1 unit | 42D |
| • 5 female contacts, 4 $mm^2$ | **3RK1911-2BE10** | | 1 | 1 unit | 42D |
| • 5 female contacts, 6 $mm^2$ | **3RK1911-2BE30** | | 1 | 1 unit | 42D |
| ⑧ **Power connecting cables, assembled at one end**<br>Power connecting cable for ET 200pro motor starters, open at one end, for HAN Q4/2, angled, 4 x 4 $mm^2$ | | | | | |
| • Length 1.5 m | **3RK1911-0DB13** | | 1 | 1 unit | 42D |
| • Length 5.0 m | **3RK1911-0DB33** | | 1 | 1 unit | 42D |
| ⑨ **Power connecting cables for isolator module, assembled at one end**<br>Power connecting cable for ET 200pro isolator modules, open at one end, for HAN Q4/2, angled, insert turned at isolator module end, 4 x 4 $mm^2$ | | | | | |
| • Length 1.5 m | **3RK1911-0DF13** | | 1 | 1 unit | 42D |
| • Length 5.0 m | **3RK1911-0DF33** | | 1 | 1 unit | 42D |
| **Power loop-through on the field device** | | | | | |
| ③ **Power jumper plugs** | **3RK1922-2BQ00** | | 1 | 1 unit | 42D |
| ⑦ **Power loop-through plugs**<br>Connector set for power loop-through for connection to ET 200pro motor starters/ET 200pro isolator modules, comprising a cable-end connector hood, angled outgoing feeder, pin insert for HAN Q4/2, incl. gland | | | | | |
| • 4 male contacts, 2.5 $mm^2$ | **3RK1911-2BF50** | | 1 | 1 unit | 42D |
| • 4 male contacts, 4 $mm^2$ | **3RK1911-2BF10** | | 1 | 1 unit | 42D |
| **Motor cables** | | | | | |
| ④ **Motor connection plugs**<br>Connector set for motor cable for connection to ET 200pro motor starters, comprising a cable-end connector hood, angled outgoing feeder, pin insert for HAN Q8/0, incl. gland | | | | | |
| • 8 male contacts, 1.5 $mm^2$ | **3RK1902-0CE00** | | 1 | 1 unit | 42D |
| • 6 male contacts, 2.5 $mm^2$ | **3RK1902-0CC00** | | 1 | 1 unit | 42D |
| ⑤ **Motor plugs**<br>Connector set for motor cable for connection to motors, comprising a cable-end connector hood, straight outgoing feeder, female insert for HAN 10e, incl. star jumper, incl. gland | | | | | |
| • 7 female contacts, 1.5 $mm^2$ | **3RK1911-2BM21** | | 1 | 1 set | 42D |
| • 7 female contacts, 2.5 $mm^2$ | **3RK1911-2BM22** | | 1 | 1 set | 42D |
| ⑥ **Motor plugs with EMC suppressor circuit**<br>Connector set for motor cable for connection to motors, comprising a cable-end connector hood, straight outgoing feeder, female insert for HAN 10e with EMC suppressor circuit, incl. star jumper, incl. gland | | | | | |
| • 7 female contacts, 1.5 $mm^2$ | **3RK1911-2BL21** | | 1 | 1 set | 42D |
| • 7 female contacts, 2.5 $mm^2$ | **3RK1911-2BL22** | | 1 | 1 set | 42D |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories for ET 200pro motor starters

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Motor cables** (continued) | | | | | |
| ⑩ **Motor cables, assembled at one end**<br>Open at one end, HAN Q8, angled length 5 m | | | | | |
| • For motor without brake, for ET 200pro, 4 x 1.5 $mm^2$ | **3RK1911-0EB31** | | 1 | 1 unit | 42D |
| • For motor with brake for ET 200pro, 6 x 1.5 $mm^2$ | **3RK1911-0ED31** | | 1 | 1 unit | 42D |
| • For motor without brake, with thermistor, for ET 200pro, 6 x 1.5 $mm^2$ | **3RK1911-0EF31** | | 1 | 1 unit | 42D |
| • For motor with brake and thermistor for ET 200pro, 8 x 1.5 $mm^2$ | **3RK1911-0EG31** | | 1 | 1 unit | 42D |
| **Power bus** | | | | | |
| ⑫ **Power T terminal connectors**<br>For 400 V AC, for connection of feeders (e.g. motor starters) by means of standard round cable at any point of the power bus, by insulation displacement connection, used with preassembled bus segments | | | | | |
| • 2.5 $mm^2$/4 $mm^2$ | **3RK1911-2BF01** | | 1 | 1 unit | 42D |
| • 4 $mm^2$/6 $mm^2$ | **3RK1911-2BF02** | | 1 | 1 unit | 42D |
| ⑬ **Power double-T terminal connectors**<br>For 400 V AC, for connection of feeders (e.g. motor starters) by means of standard round cable at any point of the power bus, by insulation displacement connection, used with preassembled bus segments, connection of two motor starters possible | | | | | |
| • 4 $mm^2$/6 $mm^2$ | **3RK1911-2BG02** | | 1 | 1 unit | 42D |
| **Sealing set (comprising 2 seals)**<br>For power T/power double-T terminal connectors | | | | | |
| • For power cables with Ø 10 ... 13 mm | **3RK1911-5BA00** | | 1 | 1 unit | 42D |
| • For power cables with Ø 13 ... 16 mm | **3RK1911-5BA10** | | 1 | 1 unit | 42D |
| • For power cables with Ø 16 ... 19 mm | **3RK1911-5BA20** | | 1 | 1 unit | 42D |
| • For power cables with Ø 19 ... 22 mm | **3RK1911-5BA30** | | 1 | 1 unit | 42D |
| • Blanking plugs | **3RK1911-5BA50** | | 1 | 1 unit | 42D |
| **Further accessories for power connections** | | | | | |
| **Crimping tool**<br>For pins/sockets, 4 $mm^2$ and 6 $mm^2$ | **3RK1902-0CW00** | | 1 | 1 unit | 42D |
| **Dismantling tools** | | | | | |
| • For male and female contacts for 9-pole HAN Q4/2 inserts | **3RK1902-0AB00** | | 1 | 1 unit | 42D |
| • For male and female contacts for 9-pole HAN Q8 inserts | **3RK1902-0AJ00** | | 1 | 1 unit | 42D |
| **Sealing caps**<br>For 9-pole power sockets | | | | | |
| • 1 unit per pack | **3RK1902-0CK00** | | 1 | 1 unit | 42D |
| • 10 units per pack | **3RK1902-0CJ00** | | 1 | 10 units | 42D |

3RK1902-0CW00

3RK1902-0CK00



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Further accessories** | | | | | | |
| | **Module racks, wide**[1] | | | | | |
| | • Length 500 mm | **6ES7194-4GB00-0AA0** | | 1 | 1 unit | 250 |
| | • Length 1 000 mm | **6ES7194-4GB60-0AA0** | | 1 | 1 unit | 250 |
| | • Length 2 000 mm | **6ES7194-4GB20-0AA0** | | 1 | 1 unit | 250 |
| | **Module racks, wide, compact**[1] | | | | | |
| | • Length 500 mm | **6ES7194-4GD00-0AA0** | | 1 | 1 unit | 250 |
| | • Length 1 000 mm | **6ES7194-4GD10-0AA0** | | 1 | 1 unit | 250 |
| | • Length 2 000 mm | **6ES7194-4GD20-0AA0** | | 1 | 1 unit | 250 |
| | **Backplane bus modules 110 mm**[2] | **3RK1922-2BA00** | | 1 | 1 unit | 42D |
| 3RK1922-3BA00 | **Handheld devices**<br>For ET 200pro motor starters (or for ET 200S High Feature and M200D motor starters) for local operation.<br>Notes:<br>• The motor-starter-specific serial interface cables must be ordered separately.<br>• The RS 232 interface cable 3RK1922-2BP00 is used for the MS ET 200pro. | **3RK1922-3BA00** | | 1 | 1 unit | 42D |
| | **RS 232 interface cable**<br>Serial data connection between ET 200pro (or M200D) motor starters and the RS 232 interface of a PC/PG/laptop (with the Motor Starter ES software) or the handheld device 3RK1922-3BA00. | **3RK1922-2BP00** | | 1 | 1 unit | 42D |
| | **USB interface cable, 2.5 m**<br>Serial data connection between ET 200pro (or M200D) motor starters and the USB interface of a PC/PG/laptop (with the Motor Starter ES software). | **6SL3555-0PA00-2AA0** | | 1 | 1 unit | 368 |
| 3RK1901-1KA00 | **M12 sealing caps**<br>For sealing unused M12 input or output sockets (one set contains ten sealing caps) | **3RK1901-1KA00** | | 100 | 10 units | 42C |
| 3RK1911-6EA00 | **Motor suppression module**<br>RC element for installation in motor terminal box | | | | | |
| | • Angled design | **3RK1911-6EA00** | | 1 | 1 unit | 42D |
| 3RK1911-6EB00 | • Round design | **3RK1911-6EB00** | | 1 | 1 unit | 42D |

[1] The wide module rack can accommodate all ET 200pro motor starters and any optional modules (isolator module, 400 V disconnecting module).

[2] The backplane bus module is a prerequisite for operation of the ET 200pro motor starter and the optional module.

For more connection technology products, see https://support.industry.siemens.com/cs/ww/en/view/65355810.

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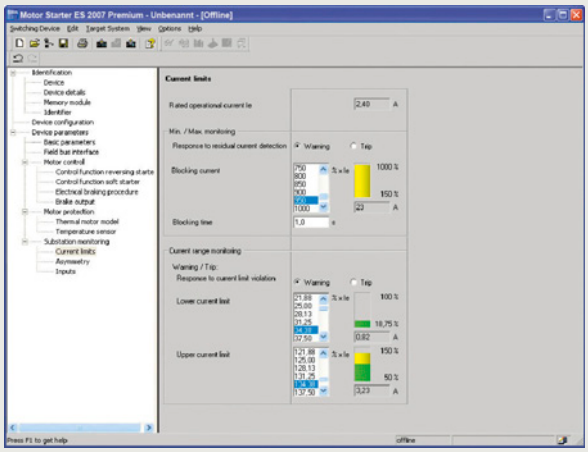
## Motor Starter ES

### Overview




Motor Starter ES for parameterization, monitoring, diagnostics and testing of motor starters

**More information**

Industry Mall, see www.siemens.com/product?3ZS1

Technical specifications and system requirements, see https://support.industry.siemens.com/cs/ww/en/ps/16713/td

Motor Starter ES is used for start-up, parameterization, diagnostics, documentation and the preventative maintenance of the motor starters in the SIMATIC ET 200S, ET 200pro, ECOFAST and M200D product families.

The software program is available in three versions which differ in their user-friendliness, scope of functions and price.

For detailed information on the Motor Starter ES software, see page 14/10.

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## Overview

SIRIUS M200D AS-i Basic motor starter with manual local operation

The intelligent and highly flexible SIRIUS M200D motor starters for distributed installation start, monitor and protect motors and loads up to 5.5 kW.

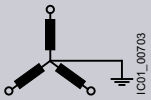
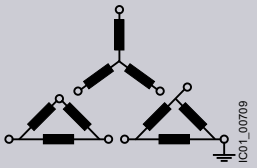
The M200D motor starters are available in four versions:

| M200D AS-i Basic | M200D AS-i Standard | M200D PROFIBUS | M200D PROFINET |
|---|---|---|---|
| Motor control with AS-i communication | | PROFIBUS | PROFINET |
| Mechanical or electronic switching | | | |
| ✓ | ✓ | ✓ | ✓ |
| Electronic switching with soft starter functionality | | | |
| -- | ✓ | ✓ | ✓ |

✓ Function available
-- Function not available

Voltage data

The specifications for 3-phase systems according to IEC 60947-4-1 apply for the following line system configurations:

| Voltage $U_e$ | Line system configurations | |
|---|---|---|
| | Three-phase four-wire systems | Three-phase three-wire systems |
| |   |   |
| V | V | V |
| 230 | -- | 230 |
| 400 | 230/400 | 400 |
| 440 | 260/440 | 440 |
| 500 | -- | 500 |

-- Not specified

**More information**

Homepage, see www.siemens.com/sirius-motor-starter-m200d

Industry Mall, see www.siemens.com/product?M200D

Decision support for motor start – Starting and operating three-phase asynchronous motors efficiently, see www.siemens.com/motorstart-guide

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=MS_M200D

### *Basic functionality*

The versions of the M200D motor starter are equipped with the following properties and functions:

- Available as direct-on-line and reversing starters in a rugged design
- Electromechanical or electronic switching version
- Low variance – only two device versions up to 5.5kW thanks to wide range setting
- All versions have the same enclosure size.
- Degree of protection IP65
- Quick and fail-safe wiring of system and motor cables using ISO 23570 plug-in connector technology (Q4/2 and Q8/0)
- Robust and widely used M12 connection method for digital inputs and outputs
- Integrated feeder connector monitoring
- Full motor protection through overload protection and a temperature sensor (PTC, TC)
- Short-circuit and overload protection integrated
- Integrated repair switch lockable with three locks (multi-level service)
- Uniform wiring to the SINAMICS G115D and SINAMICS G120D frequency converters and to the ET 200pro distributed I/O system
- Extensive diagnostics concept using LEDs
- Optionally available integrated manual local control with key-operated switch (ordering option)
- Optionally available brake actuation with voltages from 180 V DC (no rectifier needed in motor) or 230/400 V AC (order versions)

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## General data

***Article number scheme***

| Product versions | | Article number | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Motor starters** | | **3RK13** | **□** | **5** | **–** | **6** | **□** | **S** | **□** | **1** | **–** | **□** | **A** | **□** | **□** | |
| Type | AS-i Basic | | **1** | | | | | | | | | | | **A** | | |
| | AS-i Standard | | **2** | | | | | | | | | | | **A** | | |
| | PROFIBUS/PROFINET | | **9** | | | | | | | | | | | **D** | | |
| Setting range for rated operational current $I_A$ | 0.15 ... 2 A | | | | | | **K** | | | | | | | | | |
| | 1.5 ... 9 A | | | | | | **N** | | | | | | | | | |
| | 1.5 ... 12 A | | | | | | **L** | | | | | | | | | |
| Starter version | Electromechanical starters | | | | | | | | **4** | | | | | | | With integrated contactor |
| | Electronic starters | | | | | | | | **7** | | | | | | | With thyristors |
| Product function | Direct-on-line starters | | | | | | | | | | | **0** | | | | |
| | Reversing starters | | | | | | | | | | | **1** | | | | |
| | Direct-on-line starters | | | | | | | | | | | **2** | | | | With manual local operation |
| | Reversing starters | | | | | | | | | | | **3** | | | | With manual local operation |
| Brake actuation | None | | | | | | | | | | | | | | **0** | |
| | 230/400 V AC | | | | | | | | | | | | | | **3** | |
| | 180 V DC | | | | | | | | | | | | | | **5** | |
| Example | | **3RK13** | **1** | **5** | **–** | **6** | **K** | **S** | **4** | **1** | **–** | **3** | **A** | **A** | **0** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

### Benefits

M200D motor starters provide the following advantages for customers:

- High plant availability through plug-in capability of the main circuit, communication and I/Os – relevant for installing and replacing devices
- Cabinet-free construction and near-motor installation thanks to the high degree of protection IP65
- The motor starters record the actual current flow for the parameterizable electronic motor overload protection. Reliable messages concerning the overshooting or undershooting of setpoint values ensure comprehensive motor protection. All motor protection functions can be defined by simple parameterization
- Low stock levels and low ordering effort thanks to a wide setting range for the electronic motor protection of 1:10 (only two device versions up to 5.5 kW)
- The integrated wide range for the current enables a single device to cover numerous standard motors of different sizes.
- Comprehensive offering of accessories, including ready-assembled cables
- The M200D motor starters can be installed with a few manual steps. The integrated plug-in technology enables far lower wiring outlay:
  Preassembled cables can be plugged directly onto the motor starter module.
- Easy and user-friendly installation because all versions have the same enclosure dimensions.
- Fast and user-friendly commissioning using optional manual local operation
- Increase of process speed through integrated functions such as "Quick Stop" and "Disable Quick Stop", e.g. at points and crossings
- Optional manual local control with momentary-contact and latching operation for easier startup and easier servicing

### Application

The high degree of protection IP65 makes the M200D motor starters suitable in particular for use on extensive conveying systems such as are found in mail sorting centers, airports, automotive factories and the packing industry.

For simple drive tasks, particularly in conveyor applications, the new SINAMICS G115D frequency converter series with a performance range from 0.37 kW to 7.5 kW and degree of protection IP65 is the ideal partner for the M200D motor starters.

SINAMICS G115D converters allow for continuous speed control of three-phase asynchronous motors and comply with the requirements of conveyor technology applications with frequency control (for more information, see Catalog D 31.2).

***Use of SIRIUS M200D motor starters in conjunction with IE3 and IE4 motors***

Note:

For the use of SIRIUS M200D motor starters in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

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## Overview

For motor control using AS-Interface there are the following M200D motor starter versions: SIRIUS M200D AS-i Basic and SIRIUS M200D AS-i Standard (basic functionality, see page 9/19 "SIRIUS M200D motor starters" ➞ "General data" ➞ "Overview").

### *SIRIUS M200D AS-i Basic*

Functionality

- Easy and fast on-site startup through parameterization of local setting knobs (DIP switches) and rotary coding switches for adjusting the rated operational current. The rotary coding switch has an OFF position for deactivating the overload protection with the help of the thermal motor model when using a temperature sensor.

Communications

- AS-i communication with A/B addressing according to Spec V2.1
- The AS-i bus is connected cost-effectively using an M12 connection on the device. Of the four digital inputs, two are contained in the process image and can therefore be used in the PLC program. The other two inputs are locally effective and permanently assigned with functions.
- The LEDs can provide comprehensive diagnostics of the device on the spot. In addition to diagnostics using the PAE process image, the device can create up to 15 different diagnostic messages per slave. The message with the highest priority can be read out through the AS-i communication. This is yet another new development which distinguishes the M200D AS-i Basic motor starter from the rest of the market and adds innovative technology, maximum availability and transparency to the system.

### *SIRIUS M200D AS-i Standard*

The intelligent and highly flexible M200D AS-i Standard motor starter in A/B technology starts and protects motors and loads up to 5.5 kW. It is available in direct-on-line or reversing starter versions, in a mechanical version and also a solid-state version (the latter with soft start function).

The M200D AS-i Standard motor starter is the most functional member of the SIRIUS motor starter family in the high degree of protection IP65 for AS-i communication. Consistency with other products of the SIRIUS M200D motor starter range and with the frequency converter and ET 200pro I/O system is assured.

Functionality

- AS-i communication with A/B addressing according to Spec 3.0
- Solid-state version also with soft start function
- AS-i slave profile 7AE/7A5 with process image 6E/4A
- Full TIA integration: All digital inputs and outputs exist in the cyclic process image and are visible through AS-i, providing maximum flexibility and best adaptability to the application.
- Additionally expanded diagnostics using data record through AS-i bus
- Complete plant monitoring using statistics data record and current value monitoring by means of data records
- Parameterization through AS-i bus with the help of data records or an expanded process image from the user program
- Control of the motor starter using a command data record from the user program
- Flexible assignment of the digital inputs and outputs with all available assignable input actions
- Parameterization using Motor Starter ES at the local interface (ordering option for startup software)
- Diagnostics with the help of Motor Starter ES (ordering option for startup software)

### *Mounting and installation*

The M200D motor starters can be installed with a few manual steps. The integrated plug-in technology enables far lower wiring outlay. Connecting cables can be plugged directly onto the motor starter module. Swapping of the connecting wires and malfunctions within the plant are prevented by preassembled cables. The AS-i bus is connected cost-effectively using an M12 connection on the device. All versions have identical enclosure dimensions for easier system design and conversion.

Parameterization and configuration

The particularly robust M200D AS-i Standard motor starter is characterized by numerous functions which can be flexibly parameterized. It enables highly flexible parameterization through the AS-i bus using data records from the user program as well as user-friendly local parameterization using the Motor Starter ES startup software through the local point-to-point interface.

Functions can be flexibly assigned to the digital inputs and outputs, adapting them to all possible conveyor applications. All motor protection functions, limit values and reactions can be defined by parameterization. The AS-i Standard is unique. In its 6E/4A process image the motor starter sends all four digital inputs and the digital output via the process image to the PLC in cyclic mode. System configuration and system documentation are facilitated not least by a number of CAX data.

Operation

The new generation of motor starters is characterized by its advanced functionality, maximum flexibility and extremely high degree of automation.

All digital inputs and outputs exist in the cyclic process image. All limit values for monitoring functions and their reactions are parameterizable and therefore adaptable to the application. The motor starters record the actual current flow. Evaluating the current of the parameterizable electronic overload protection increases the availability of the drives, as do reliable messages concerning the overshooting or undershooting of setpoint values.

Diagnostics and preventive maintenance

The M200D sets new standards for diagnostics. In addition to diagnostics using the PAE process image and diagnostics by "parameter echo" (up to 15 different diagnostic messages per slave can be read out via AS-i communication), the possibility of reading out diagnostic data records is unique on the market.

The AS-i Standard is recommended in particular for expansive and highly automated system components because the possibility of monitoring devices and systems with data records (statistical data, measured values and device diagnostics) provides an in-depth view of the plant from the control room, guaranteeing the monitoring process and increasing plant availability.

Preventive maintenance can be carried out with the integrated maintenance timer and plant downtimes prevented as a result in advance.

Local control of a drive is possible using the ordering option with integrated manual local operation. This is yet another new development which distinguishes the M200D AS-i Standard motor starter from the rest of the market and adds innovative technology, maximum availability and transparency to the plant.

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## General data

| | SIRIUS M200D AS-i Basic | SIRIUS M200D AS-i Standard |
|---|---|---|
| **Device functions (firmware features)** | | |
| **Slave on the bus** | | |
| Fieldbus | ✓ AS-i | |
| Slave type | ✓ A/B according to Spec 2.1 | ✓ A/B according to Spec 3.0 |
| Profile | ✓ 7.A.E | ✓ 7.A.E & 7.A.5 |
| Number of assigned AS-i addresses on the bus | ✓ 1 | ✓ 2 |
| Number of stations per AS-i master | ✓ Max. 62 devices | ✓ Max. 31 devices |
| AS-i master profile | ✓ M3 and higher | ✓ M4 and higher |
| **Parameter assignment** | | |
| DIP switches | ✓ | -- |
| Potentiometer for rated operational current | ✓ | -- |
| Motor Starter ES | -- | ✓ |
| Data records through AS-i | -- | ✓ |
| **Diagnostics** | | |
| Diagnostics through parameter channel | ✓ | |
| Acyclic through data records | -- | ✓ |
| Expanded process image PAE 4 bytes | -- | ✓ |
| **Process image** | | |
| Process image | ✓ 4E/3A | ✓ 6E/4A |
| **Data channels** | | |
| Local optical interface (manual local) | ✓ | |
| AS-i bus | ✓ | |
| Motor Starter ES through local interface | -- | ✓ |
| Motor Starter ES through bus | -- | |
| **Data records[1] (acyclic)** | | |
| Parameter assignment | -- | ✓ |
| Diagnostics | -- | ✓ |
| Measured values | -- | ✓ |
| Statistics | -- | ✓ |
| Commands | -- | ✓ |
| **Inputs** | | |
| Number | ✓ 4 | |
| • Of these in the process image | ✓ 2 through AS-i | ✓ 4 through AS-i |
| Input action | ✓ For permanently assigned functions, see manual | ✓ Parameterizable: flexible |
| Quick stop | ✓ Permanent function: latching, edge-triggered | ✓ Parameterizable function: latching (edge-triggered), non-latching (level-triggered) |
| **Outputs** | | |
| Number | ✓ 1 | |
| Output action | ✓ Permanent function: assigned with group fault | ✓ Parameterizable: For function, see manual |
| **Brake output** | | |
| 180 V DC/230/400 V AC/without | ✓ | |
| **Motor protection** | | |
| Overload protection | ✓ Electronic, wide range 1:10 | |
| Short-circuit protection | ✓ | |
| Full motor protection | ✓ | |
| Temperature sensor | ✓ Parameterizable using DIP switches: PTC or Thermoclick or deactivated | ✓ Parameterizable via Motor Starter ES, data record: PTC or Thermoclick or deactivated |

✓ Function available
-- Function not available

[1] The data records are a reduced selection compared with PROFIBUS/PROFINET.

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| | SIRIUS M200D AS-i Basic | SIRIUS M200D AS-i Standard |
|---|---|---|
| **Device functions (firmware features)** (continued) | | |
| **Device function** | | |
| Repair switch | ✓ | |
| Current limit monitoring bottom | -- | ✓ Parameterizable |
| Current limit monitoring top | -- | ✓ Parameterizable |
| Residual current detection | ✓ Permanent function: disconnection, less than 18.75% of the rated operational current $I_e$ | ✓ Parameterizable |
| Blocking current | ✓ Permanent function: starting up of the motor: tripping limit up to 800% of the rated operational current $I_e$ for 10 s<br>Active operation: threshold for tripping "blocking current" up to 400% of the rated operational current $I_e$ | ✓ Parameterizable |
| Asymmetry | ✓ Permanent function: up to 30% of the rated operational current $I_e$ (only mechanical MS) | ✓ Parameterizable |
| Load type | ✓ Permanent function: 3-phase | ✓ Parameterizable: 1-phase and 3-phase |
| Shutdown class | ✓ Parameterizable using DIP switches: CLASS 10/deactivated | Parameterizable via Motor Starter ES, data record: CLASS 5, 10, 15, 20 |
| Protection against voltage failure | ✓ | ✓ Parameterizable: activated/deactivated |
| **Soft starter control function** | | |
| Soft start function | -- | ✓ Only solid-state version |
| Bypass function | -- | ✓ Only solid-state version |

✓ Function available
-- Function not available

## Application

The M200D AS-i Standard is particularly suitable for highly automated applications in conveyor systems requiring devices and systems to be monitored to prevent or limit plant downtime. The option of parameterizing the functions of the motor starter or its interfaces also creates the prerequisite for fine-adjustment to the function of the motor starter in the application and hence provides for extreme flexibility.

***Use of M200D motor starters in conjunction with IE3 and IE4 motors***

Note:

For the use of SIRIUS M200D motor starters in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

## Technical specifications

| More information | |
|---|---|
| Manuals for SIRIUS M200D:<br>• AS-i Basic, see https://support.industry.siemens.com/cs/ww/en/view/35016496<br>• AS-i Standard, see https://support.industry.siemens.com/cs/ww/en/view/38722160<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16324/faq | Notes on security:<br>In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.<br>For more information on the subject of Industrial Security, see www.siemens.com/industrialsecurity. |

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## General data

| Type | | M200D motor starters | | | |
|---|---|---|---|---|---|
| | | AS-i Basic electromechanical switching | AS-i Basic electronic switching | AS-i Standard electromechanical switching | AS-i Standard electronic switching |
| Technology designation[1] | | DSte/RSte | sDSte/sRSte | DSte/RSte | sDSSte/sRSSte |
| **Mechanics and environment** | | | | | |
| **Mounting dimensions (W x H x D)** | mm | 294 x 215 x 159 | | | |
| **Permissible ambient temperature** | | | | | |
| • During operation | °C | -25 ... +55 | | | |
| • During storage | °C | -40 ... +70 | | | |
| **Weight** | g | 2 880/3 130 | 3 220/3 420 | 2 880/3 130 | 3 220/3 420 |
| **Permissible mounting position** | | Vertical, horizontal, lying | | | |
| **Vibration resistance according to IEC 60068-2-6** | *g* | 2 | | | |
| **Shock resistance** | | | | | |
| • According to IEC 60068-2-27 | *g*/ms | 12/11 half-sine | | | |
| • Without influencing the contact position | *g*/ms | 9.8/5 or 5.9/10 | | | |
| **Degree of protection according to IEC 529** | | IP65 | | | |
| **Installation altitude** | | | | | |
| • Up to 1 000 m | | No derating | | | |
| • Up to 2 000 m | | 1% per 100 m | | | |
| **Cooling** | | Convection | | | |
| **Protection class IEC 536 (DIN VDE 0106-1)** | | 1 | | | |
| **Electrical specifications** | | | | | |
| ***Control circuit*** | | | | | |
| **Operational voltage $U_{As-i}$** | V DC | 26.5 ... 31.6 | | | |
| **Supply voltage $U_{aux}$** | V DC | 20.4 ... 28.8 | | | |
| **Power consumption from AS-i (incl. 200 mA sensor supply)** | mA | < 300 | | | |
| **Current consumption from $U_{aux}$ (without digital output)** | | | | | |
| • Max. | mA | 155 | 15 (direct-on-line)/ 175 (reversing) | 155 | 15 (direct-on-line)/ 175 (reversing) |
| • Typ. | mA | 75 | 10 (direct-on-line)/ 75 (reversing) | 75 | 10 (direct-on-line)/ 75 (reversing) |
| ***Main circuit*** | | | | | |
| **Maximum power of three-phase motors at 400 V AC** | kW | 5.5 | 4 | 5.5 | 5.5 |
| **Rated operational voltage $U_e$** | | | | | |
| • Approval according to IEC 60947-1 | V AC | 400 (50/60 Hz) | | | |
| • Approval according to UL and CSA | V AC | 600 (50/60 Hz) | 480 (50/60 Hz) | 600 (50/60 Hz) | 480 (50/60 Hz) |
| • Rated operational current range | A | 0.15 ... 2/1.5 ... 12 | -- | 0.15 ... 2/1.5 ... 12 | -- |
| • Rated operational current range for soft starting | A | -- | | | 0.15 ... 2/1.5 ... 12 |
| • Rated operational current range for direct-on-line starting | A | -- | 0.15 ... 2/1.5 ... 9 | -- | 0.15 ... 2/1.5 ... 9 |
| **Rated operational current $I_e$ for starters at 400 V AC** | | | | | |
| • 400 V at AC-1, AC-3 and AC-3e | A | 12 | -- | 12 | -- |
| • 500 V at AC-1, AC-3 and AC-3e | A | 9 | -- | 9 | -- |
| • 400 V at AC-4 | A | 4 | -- | 4 | -- |
| • 400 V at AC-53a | A | -- | 9 | -- | 12 for soft starting 9 for direct-on-line starting |
| **Mechanical endurance of contactor** | Operating cycles | 30 million | -- | 30 million | -- |
| **Trip class** | | CLASS 10 | | CLASS 5, 10, 15, 20 | |
| **Type of coordination according to IEC 60947-4-1** | | 1 (2 for device version 2A) | 1 | 1 (2 for device version 2A) | 1 |
| **Permissible switching frequency** | | see manual | | see manual | |
| **Rated ultimate short-circuit breaking capacity $I_q$** | | | | | |
| • At 400 V AC | kA | 50 | | | |
| • At 500 V AC | kA | 50[2] | 20[2] | 50 | 20[2] |
| **Short-circuit protection** | | | | | |
| • At $I_{emax}$ = 2 A | | Integrated, 2 x 3 $I_e$ = 26 A | | | |
| • At $I_{emax}$ = 9/12 A | | Integrated, 2 x 3 $I_e$ = 208 A | | | |
| **Brake actuation (option)** | | | | | |
| **Operational voltage** | V | 230/400 AC or 180 DC | | | |
| **Uninterrupted current** | A | < 0.5 at 230/400 V AC<br>< 0.8 at 180 V DC | | | |
| **Short-circuit protection** | | Yes, 1 A melting fuse | | | |

1) DS .... Direct-on-line starters
RS .... Reversing starters
DSS .. Direct-on-line soft starters
RSS .. Reversing soft starters
te ..... Full motor protection (thermal + electronic)
s ..... Electronic switching with semiconductor.

2) Only systems with grounded neutral point permitted.

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## Selection and ordering data

M200D AS-i Basic without manual local operation

M200D AS-i Basic with manual local operation

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Electromechanical starters (with integrated contactor)** | | | | | |
| | **3RK1315-6□S41-□AA□** | | 1 | 1 unit | 42D |
| **Rated operational current setting range/A** | | Add. price | | | |
| • 0.15 ... 2 | K | None | | | |
| • 1.5 ... 12 | L | ✓ | | | |
| **Direct-on-line starters/reversing starters** | | | | | |
| • Direct-on-line starters | 0 | None | | | |
| • Reversing starters | 1 | ✓ | | | |
| • Direct-on-line starters with manual local operation | 2 | ✓ | | | |
| • Reversing starters with manual local operation | 3 | ✓ | | | |
| **Brake actuation** | | | | | |
| • Without brake actuation | 0 | None | | | |
| • Brake actuation (230/400 V AC) | 3 | ✓ | | | |
| • Brake actuation (180 V DC) | 5 | ✓ | | | |
| **Electronic starters (with thyristors)** | | | | | |
| | **3RK1315-6□S71-□AA□** | | 1 | 1 unit | 42D |
| **Rated operational current setting range/A** | | Add. price | | | |
| • 0.15 ... 2 | K | None | | | |
| • 1.5 ... 9 | N | ✓ | | | |
| **Direct-on-line starters/reversing starters** | | | | | |
| • Direct-on-line starters | 0 | None | | | |
| • Reversing starters | 1 | ✓ | | | |
| • Direct-on-line starters with manual local operation | 2 | ✓ | | | |
| • Reversing starters with manual local operation | 3 | ✓ | | | |
| **Brake actuation** | | | | | |
| • Without brake actuation | 0 | None | | | |
| • Brake actuation (230/400 V AC) | 3 | ✓ | | | |
| • Brake actuation (180 V DC) | 5 | ✓ | | | |

✓ = Additional price

6

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## M200D Standard motor starters *IE3/IE4* ready AC-3e

### Selection and ordering data

M200D AS-i Standard without manual local operation

M200D AS-i Standard with manual local operation

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Electromechanical starters (with integrated contactor)** | | | | | |
| | **3RK1325-6□S41-□AA□** | | 1 | 1 unit | 42D |
| **Rated operational current setting range/A** | | Add. price | | | |
| • 0.15 ... 2 | K | None | | | |
| • 1.5 ... 12 | L | ✓ | | | |
| **Direct-on-line starters/reversing starters** | | | | | |
| • Direct-on-line starters | 0 | None | | | |
| • Reversing starters | 1 | ✓ | | | |
| • Direct-on-line starters with manual local operation | 2 | ✓ | | | |
| • Reversing starters with manual local operation | 3 | ✓ | | | |
| **Brake actuation** | | | | | |
| • Without brake actuation | 0 | None | | | |
| • Brake actuation (230/400 V AC) | 3 | ✓ | | | |
| • Brake actuation (180 V DC) | 5 | ✓ | | | |
| **Electronic starters (with thyristors)** | | | | | |
| | **3RK1325-6□S71-□AA□** | | 1 | 1 unit | 42D |
| **Rated operational current setting range/A** | | Add. price | | | |
| • 0.15 ... 2 | K | None | | | |
| • 1.5 ... 12 | L | ✓ | | | |
| **Direct-on-line starters/reversing starters** | | | | | |
| • Direct-on-line starters | 0 | None | | | |
| • Reversing starters | 1 | ✓ | | | |
| • Direct-on-line starters with manual local operation | 2 | ✓ | | | |
| • Reversing starters with manual local operation | 3 | ✓ | | | |
| **Brake actuation** | | | | | |
| • Without brake actuation | 0 | None | | | |
| • Brake actuation (230/400 V AC) | 3 | ✓ | | | |
| • Brake actuation (180 V DC) | 5 | ✓ | | | |

✓ = Additional price





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

The intelligent, highly flexible M200D PROFIBUS/PROFINET motor starters are the most functional motor starters of the SIRIUS motor starter family in the high degree of protection IP65 for PROFIBUS/PROFINET communication.

They start and protect motors and loads up to 5.5 kW. Direct-on-line and reversing starter versions are available in a mechanical version and also a solid-state version (the latter with soft start function).

The particularly robust M200D PROFIBUS/PROFINET motor starters are characterized by numerous functions which can be flexibly parameterized. Their modular design comprises a motor starter module and a communications module.

The M200D PROFINET motor starters enable TIA-integrated parameterization through PROFINET from STEP 7 – in familiar, user-friendly manner with the look and feel of PROFIBUS.

Functionality

- For basic functionality, see page 9/19 "SIRIUS M200D motor starters" ➞ "General data" ➞ "Overview"
- Solid-state version also with soft start function
- Robust and widely used M12 connection method for the digital inputs and outputs and the PROFIBUS/PROFINET bus connection
- All four digital inputs and two digital outputs exist in the cyclic process image. This provides complete transparency of the process on the control level
- Full TIA integration: All digital inputs and outputs exist in the cyclic process image and are visible via the bus, providing maximum flexibility and excellent adaptability to the application
- Flexible assignment of the digital inputs and outputs with all available assignable input actions
- Extensive diagnostics concept using LEDs and through the bus with the TIA-compatible mechanisms
- Expanded diagnostics using data records
- Complete plant monitoring using statistics data record and current value monitoring by means of data records
- Parameterization through PROFIBUS/PROFINET bus with the help of data records from the user program
- Control of the motor starter using a command data record from the user program
- Removable modular control unit – quicker device replacement and therefore lower costs when device outages occur – since existing wiring is on the control unit and only one device needs to be replaced
- Parameterization in STEP 7 HW Config via Motor Starter ES (ordering option for startup software)
- Startup and diagnostics with the help of Motor Starter ES (ordering option for startup software)
- Trace function through Motor Starter ES for optimized startup and tracking of process and device values

Only with PROFINET:

- Just one bus system from the MES level to the devices – no routers
- More stations on the bus and possible configuration of flexible bus structures
- Automatic re-parameterization in case of device replacement thanks to proximity detection
- Wireless integration of plant segments in difficult environments using WLAN
- Easier expansion of the system thanks to a higher number of stations on the bus and elimination of terminating resistors

M200D motor starter module for PROFIBUS/PROFINET (without communications module)

M200D communications module for PROFIBUS

M200D communications module for PROFINET

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## General data

Mounting and installation

The M200D PROFIBUS/PROFINET motor starter is comprised of the communications module and the motor starter module. Only the motor starter module has to be replaced therefore when replacing devices. This saves time and money. The communications module remains as an active station on the bus and all other system components continue running. This prevents downtimes.

The integrated plug-in technology enables far lower wiring outlay: Connecting cables can be plugged directly onto the motor starter module. The PROFINET bus is connected cost-effectively using an M12 connection on the device. All versions have identical enclosure dimensions for easier system design and conversion.

Parameterization and configuration

All motor protection functions, limit values and reactions can be defined by parameterization.

The user has several user-friendly options for the parameterization. In addition to parameterization directly from STEP 7, which also permits automatic re-parameterization in case of device replacement, it is possible to use the user-friendly Motor Starter ES startup software. By connecting a programming device directly to PROFIBUS/PROFINET and the Motor Starter ES startup software, the devices can also be conveniently programmed from a central point through the bus. Also, parameters can be changed during operation from the user program using the data record mechanism so that the function of the motor starter is adapted to the process when required. With the help of a PC and the Motor Starter ES software it is also possible to perform the parameterization through the local point-to-point interface on-site.

Functions can be flexibly assigned to the digital inputs and outputs, adapting them to all possible conveyor applications. All digital inputs and outputs exist in the cyclic process image. All limit values for monitoring functions and their reactions are parameterizable and therefore adaptable to the application. Consistency with other products of the SIRIUS M200D motor starter range and with the frequency converter and ET 200pro I/O system is assured.

***Only with M200D PROFINET motor starters***

Thanks to the integrated proximity detection, the device name does not need to be issued manually when a device is replaced. The name is issued automatically by the neighboring devices which note the "names" of the devices in their proximity. No additional startup measures are required therefore when replacing a device.

The new motor starter generation is characterized by high functionality, maximum flexibility and the highest level of automation. PROFINET is especially recommended for large-scale and highly automated system components, since the possibility of monitoring the devices or systems with data records (statistical data, measured values and device diagnostics) ensures a broader insight into the plant by the control room, and hence increases the availability of the plant sustainably.

Operation

The motor starters record the actual current flow. Evaluating the current of the parameterizable electronic overload protection increases the availability of the drives, as do reliable signals concerning the overshooting or undershooting of setpoint values.

Diagnostics and preventive maintenance

Diagnostics is provided through numerous mechanisms – and can be used as the customer prefers.

The motor starter is TIA-diagnostics compatible, which means that when a fault is identified, a diagnostics alarm is distributed, which invokes the diagnostics-OB with a SIMATIC control. The fault can be evaluated as usual in the user program.

The M200D motor starter offers a large variety of diagnostics data through data records. Its functionality is without equal on the market. There are extensive options for reading out data from the motor starter for monitoring devices, systems or processes.

The motor starter is equipped internally with three logbooks for device faults, motor starter trips and events that are issued with a time stamp. These logbooks can be read out of the motor starter at any time in the form of data records and provide the plant operator with plenty of information about the state of his plant and process which he can use to carry out improvements.

With the slave pointer and statistical data functions it is possible to read out, for example, the maximum internal current values or the number of motor starter connection operations for plant monitoring purposes. This allows deviations in the process to be monitored, but also optimum initial commissioning to take place. The user can draw conclusions about the actual load conditions of the devices in his process and on this basis can optimize his plant maintenance intervals.

The device diagnostics data record contains details of all the states of the motor starter, the device configuration and the communication status as a basis for central monitoring of devices and systems.

With installation and maintenance functions (I&M), information on modules employed and data specified by the user during configuration, such as location designations, are stored in the motor starter. I&M functions are used for troubleshooting faults and localizing changes in hardware in a plant or checking the system configuration. Reordering a device is particularly easy as the result.

The integrated maintenance timer can be used to implement preventive maintenance and avoid plant downtimes through look-ahead servicing.

Another new addition is the TRACE integrated into the Motor Starter ES software. It can be used to record measured values as a function of time following a trigger event. This enables process flows to be recorded and their timing optimized.

Local control of a drive is possible using the ordering option with integrated manual operation. This is yet another new development which distinguishes the M200D PROFIBUS/PROFINET motor starter from the rest of the market and adds innovative technology, maximum availability and transparency to the system.

***M200D PROFINET motor starters with PROFIenergy***

Increasing energy prices, far-reaching ecological problems worldwide and the threat of climate change make it necessary for you to be more conscious about your use of energy.

Active and effective energy management is possible with PROFIenergy.

PROFIenergy is a manufacturer-independent profile on PROFINET, which can be used by all manufacturers, has been standardized by PNO[1)] and supports switching off electrical devices during dead times and measuring the energy flow.

[1)] In the PNO (PROFIBUS Nutzerorganisation e. V. – PROFIBUS User Organization), manufacturers and users have come together to agree on the standardized communication technologies PROFIBUS and PROFINET.

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Switching off during dead times

PROFIenergy supports the targeted switching-off of loads during dead time.

These can be planned short breaks of a few minutes (such as lunch breaks), longer dead times (such as nights) or unplanned dead times. Energy is always saved when no power is required.

Measuring and visualizing the energy flow as a basis of energy management

The objective of energy management is to optimize the use of energy in a company – from the purchasing of energy through to the consumption of energy – economically and ecologically.

Analyses of energy consumption over time can be used to control energy flows, avoid energy peaks, improve ratings and thus save costs.

PROFIenergy enables consumption data to be read off from the devices in a unified form. This is recorded during operation and can be displayed on a control panel, for example, or on overlying energy management software packages. This ensures that the measured variables are in a uniform manufacturer-independent form and structure that is available to the user for further processing. These PROFIenergy functions thus provide the basis for active load and energy management during operation.

PROFIenergy in the M200D PROFINET motor starter

The M200D PROFINET motor starter supports the "switching during dead times" and "current measurement values" of the motor current using PROFIenergy. These are called commands, because they trigger a reaction in the M200D motor starter.

| | SIRIUS M200D PROFIBUS | SIRIUS M200D PROFINET |
|---|---|---|
| **Device functions (firmware features)** | | |
| **Slave on the bus** | | |
| Fieldbus | ✓ PROFIBUS to M12 | ✓ PROFINET to M12 |
| Adjustable number of stations | ✓ 1 ... 125 | ✓ 1 ... 128 with CPU 315, CPU 317<br>1 ... 1 256 with CPU 319 |
| **Parameter assignment** | | |
| DIP switches | ✓ For address setting and terminating resistor | -- |
| Motor Starter ES | ✓ Through bus, optical interface | |
| PROFIBUS/PROFINET data records | ✓ | |
| From STEP 7/HW Config | ✓ | |
| **Diagnostics** | | |
| Acyclic through data records | ✓ | |
| Diagnostics alarm | ✓ | |
| **Process image** | | |
| Process image | ✓ 2 bytes PAE/2 bytes PAA | |
| **Data channels** | | |
| Local optical interface (manual local) | ✓ | |
| Using Motor Starter ES through local interface | ✓ | |
| Using Motor Starter ES through bus | ✓ | |
| **Data records (acyclic)** | | |
| Parameter assignment | ✓ Using DS 131 (DS = data record) | |
| Diagnostics | ✓ Device-specific DS 92 | |
| Measured values | ✓ Measured values DS 94 | |
| Statistics | ✓ Statistical data DS 95 | |
| Commands | ✓ Using DS 93 | |
| Slave pointer | ✓ Slave pointer DS 96 | |
| Logbook | ✓ Using Motor Starter ES and data records: device faults DS 72, tripping operation DS 73, events DS 75 | |
| Device identification | ✓ Using DS 100 | |
| I&M data | ✓ Using DS 231 ... 234 | ✓ Using data records 0xAFF0 ... 0xAFF3 |
| **Inputs** | | |
| Number | ✓ 4 | |
| • Of these in the process image | ✓ 4 | |
| Input action | ✓ Parameterizable: For flexibly assignable action, see manual | |
| Quick stop | ✓ Parameterizable: latching, non-latching | |

✓ Function available
-- Function not available

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## General data

| | SIRIUS M200D PROFIBUS | SIRIUS M200D PROFINET |
|---|---|---|
| **Device functions (firmware features)** (continued) | | |
| **Outputs** | | |
| Number | ✓ 2 | |
| • Of these in the process image | ✓ 2 | |
| Output action | ✓ Parameterizable: For flexibly assignable action, see manual | |
| **Brake output** | | |
| 180 V DC/230/400 V AC/without | ✓ | |
| **Motor protection** | | |
| Overload protection | ✓ Electronic, wide range 1:10 | |
| Short-circuit protection | ✓ | |
| Full motor protection | ✓ | |
| Temperature sensor | ✓ Parameterizable via Motor Starter ES, data record: PTC or Thermoclick or deactivated | |
| **Device function** | | |
| Repair switch | ✓ | |
| Current limit monitoring bottom | ✓ Parameterizable | |
| Current limit monitoring top | ✓ Parameterizable | |
| Residual current detection | ✓ Parameterizable: tripping, warning | |
| Blocking current | ✓ Parameterizable | |
| Asymmetry | ✓ Parameterizable | |
| Load type | ✓ Parameterizable: 1-phase and 3-phase | |
| Shutdown class | ✓ Parameterizable via Motor Starter ES, data record: CLASS 5, 10, 15, 20 | |
| Protection against voltage failure | ✓ Parameterizable: activated/deactivated | |
| **Support for PROFIenergy profile** | | |
| Switching during dead times | -- | 3 |
| Measured motor current values | -- | 3 |
| **Soft starter control function** | | |
| Soft start function | ✓ | |
| Bypass function | ✓ Only solid-state version | |

✓ Function available
-- Function not available

## Benefits

***M200D PROFINET motor starters with PROFIenergy***

Both standards and laws are making environmental protection and energy management increasingly important, as is the desire to cut energy costs in production facilities and thus ensure a sustainable competitive advantage.

It is thus an objective within the industry to save energy and actively reduce $CO_2$ emissions. By the careful use of valuable resources, the manufacturer-independent PROFIenergy profile on PROFINET can make an active contribution to environmental protection.

## Application

M200D PROFIBUS/PROFINET motor starters are particularly suitable for fully TIA-integrated, highly automated conveyor applications that meet all needs with regard to the monitoring of devices and systems and preventive maintenance.

Adaptability of the motor starter functions and maximum flexibility of the device enable a broad range of application without any limits. The PROFINET-specific expansions are the best assurance of a future-proof investment.

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## Technical specifications

| More information | |
|---|---|
| Equipment Manual for M200D PROFIBUS/PROFINET, see https://support.industry.siemens.com/cs/ww/en/view/38823402<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16325/faq | Notes on security:<br>In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.<br>For more information on the subject of Industrial Security, see www.siemens.com/industrialsecurity. |

| **Type** | | **M200D PROFIBUS/PROFINET motor starter modules** | |
|---|---|---|---|
| | | **Electromechanical switching** | **Electronic switching** |
| **Technology designation**[1] | | **DSte/RSte** | **sDSSte/sRSSte** |
| **Mechanics and environment** | | | |
| **Mounting dimensions (W x H x D)** | | | |
| • Without communications module | mm | 294 x 215 x 159 | |
| • With communications module | mm | 295 x 215 x 163 | |
| **Permissible ambient temperature** | | | |
| • During operation | °C | -25 ... +55 | |
| • During storage | °C | -40 ... +70 | |
| **Weight** | g | 2 820/3 080 | 3 160/3 360 |
| **Permissible mounting position** | | Vertical, horizontal, lying | |
| **Vibration resistance according to IEC 60068-2-6** | *g* | 2 | |
| **Shock resistance** | | | |
| • According to IEC 60068-2-27 | *g*/ms | 12/11 half-sine | |
| • Without influencing the contact position | *g*/ms | 9.8/5 or 5.9/10 | |
| **Degree of protection according to IEC 529** | | IP65 | |
| **Installation altitude** | | | |
| • Up to 1 000 m | | No derating | |
| • Up to 2 000 m | | 1% per 100 m | |
| **Cooling** | | Convection | |
| **Protection class IEC 536 (DIN VDE 0106-1)** | | 1 | |
| **Electrical specifications** | | | |
| ***Main circuit*** | | | |
| **Maximum power of three-phase motors at 400 V AC** | kW | 5.5 | |
| **Rated operational voltage $U_e$** | | | |
| • Approval according to EN 60947-1 | V AC | 400 (50/60 Hz) | |
| • Approval according to UL and CSA | V AC | 600 (50/60 Hz) | 480 (50/60 Hz) |
| • Rated operational current range | A | 0.15 ... 2/1.5 ... 12 | -- |
| • Rated operational current range for soft starting | A | -- | 0.15 ... 2/1.5 ... 12 |
| • Rated operational current range for direct-on-line starting | A | -- | 0.15 ... 2/1.5 ... 9 |
| **Rated operational current $I_e$ for starters at 400 V AC** | | | |
| • 400 V at AC-1, AC-3 and AC-3e | A | 12 | -- |
| • 500 V at AC-1, AC-3 and AC-3e | A | 9 | -- |
| • 400 V at AC-4 | A | 4 | -- |
| • 400 V at AC-53a | A | -- | 12 for soft starting, 9 for direct-on-line starting |
| **Mechanical endurance of contactor** | Operating cycles | 30 million | -- |
| **Trip class** | | CLASS 5, 10, 15, 20 | |
| **Permissible switching frequency** | | see manual | |
| **Rated ultimate short-circuit breaking capacity $I_q$** | | | |
| • At 400 V AC | kA | 50 | |
| • At 500 V AC | kA | 50 | 20[2] |
| **Short-circuit protection** | | | |
| • At $I_{emax}$ = 2 A | | Integrated, 2 x 13 $I_e$ = 26 A | |
| • At $I_{emax}$ = 9/12 A | | Integrated, 2 x 13 $I_e$ = 208 A | |

1) DS .... Direct-on-line starters
RS .... Reversing starters
DSS .. Direct-on-line soft starters
RSS .. Reversing soft starters
te ..... Full motor protection (thermal + electronic)
s ..... Electronic switching with semiconductor.

2) Only systems with grounded neutral point permitted.

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## General data

| | | Line voltage | | | | |
|---|---|---|---|---|---|---|
| | | **380 V AC** | **400 V AC** | **440 V AC** | **480 V AC** | **500 V AC** |
| **Brake voltage with brake actuation 180 V DC[1)]** | | | | | | |
| **Operational voltage** | V | 230/400 AC or 180 DC | | | | |
| **Uninterrupted current** | A | < 0.5 at 230/400 V AC, < 0.8 at 180 V DC | | | | |
| **Short-circuit protection** | | Yes, 1 A melting fuse | | | | |
| **Rectified brake voltage** | V DC | 171 | 180 | 198 | 216 | 225 |
| **Recommended brake coil voltage for Siemens motors** | V DC | 170 ... 200 | 170 ... 200 | 184 ... 218 | 184 ... 218 | -- |

1) Integrated brake actuation supplies DC power supply for the brake.

| **Type** | | **M200D communications modules** | |
|---|---|---|---|
| | | **For PROFIBUS** | **For PROFINET** |
| **Mechanics and environment** | | | |
| **Mounting dimensions (W x H x D)** | mm | 174 x 139 x 40 | |
| **Permissible ambient temperature** | | | |
| • During operation | °C | -25 ... +55 | |
| • During storage | °C | -40 ... +70 | |
| **Weight** | g | 300 | |
| **Permissible mounting position** | | Vertical, horizontal, lying | |
| **Vibration resistance according to IEC 60068-2-6** | *g* | 2 | |
| **Shock resistance** | | | |
| • According to IEC 60068-2-27 | *g*/ms | 12/11 half-sine | |
| • Without influencing the contact position | *g*/ms | 9.8/5 or 5.9/10 | |
| **Degree of protection according to IEC 529** | | IP65 | |
| **Installation altitude** | | | |
| • Up to 1 000 m | | No derating | |
| • Up to 2 000 m | | 1% per 100 m | |
| **Cooling** | | Convection | |
| **Protection class IEC 536 (DIN VDE 0106-1)** | | 1 | |
| **Electrical specifications** | | | |
| ***Control circuit*** | | | |
| **Operational voltage** | | | |
| • $U_{DC24V-NS}$ | V DC | 20.4 ... 28.8 | |
| • $U_{DC24V-S}$ | V DC | 20.4 ... 28.8 | |
| **Power consumption from** | | | |
| • $U_{DC24V-NS}$ | mA | < 300 | |
| • $U_{DC24V-S}$ | mA | < 100 | |

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## Selection and ordering data

M200D motor starter module
PROFIBUS/PROFINET
(without communications module)

M200D motor starter
PROFIBUS

M200D motor starter
PROFINET

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **M200D communications modules for PROFIBUS** | | | | | |
| **Communications module for PROFIBUS**<br>M12 connection for communication, 7/8" for 24 V power supply | **3RK1305-0AS01-0AA0** | | 1 | 1 unit | 42D |
| **M200D communications modules for PROFINET** | | | | | |
| **Communications module for PROFINET**<br>M12 connection for communication, 7/8" for 24 V power supply | **3RK1335-0AS01-0AA0** | | 1 | 1 unit | 42D |
| **M200D PROFIBUS/PROFINET motor starter modules** | | | | | |
| ***Electromechanical starters (with integrated contactor)*** | | | | | |
| | **3RK1395-6□S41-□AD□** | | 1 | 1 unit | 42D |
| **Rated operational current setting range/A** | | Add. price | | | |
| • 0.15 ... 2 | K | None | | | |
| • 1.5 ... 12 | L | ✓ | | | |
| **Direct-on-line starters/reversing starters** | | | | | |
| • Direct-on-line starters | 0 | None | | | |
| • Reversing starters | 1 | ✓ | | | |
| • Direct-on-line starters with manual local operation | 2 | ✓ | | | |
| • Reversing starters with manual local operation | 3 | ✓ | | | |
| **Brake actuation** | | | | | |
| • Without brake actuation | 0 | None | | | |
| • Brake actuation (230/400 V AC) | 3 | ✓ | | | |
| • Brake actuation (180 V DC) | 5 | ✓ | | | |
| ***Electronic starters (with thyristors)*** | | | | | |
| | **3RK1395-6□S71-□AD□** | | 1 | 1 unit | 42D |
| **Rated operational current setting range/A** | | Add. price | | | |
| • 0.15 ... 2 | K | None | | | |
| • 1.5 ... 12 | L | ✓ | | | |
| **Direct-on-line starters/reversing starters** | | | | | |
| • Direct-on-line starters | 0 | None | | | |
| • Reversing starters | 1 | ✓ | | | |
| • Direct-on-line starters with manual local operation | 2 | ✓ | | | |
| • Reversing starters with manual local operation | 3 | ✓ | | | |
| **Brake actuation** | | | | | |
| • Without brake actuation | 0 | None | | | |
| • Brake actuation (230/400 V AC) | 3 | ✓ | | | |
| • Brake actuation (180 V DC) | 5 | ✓ | | | |

✓ = Additional price

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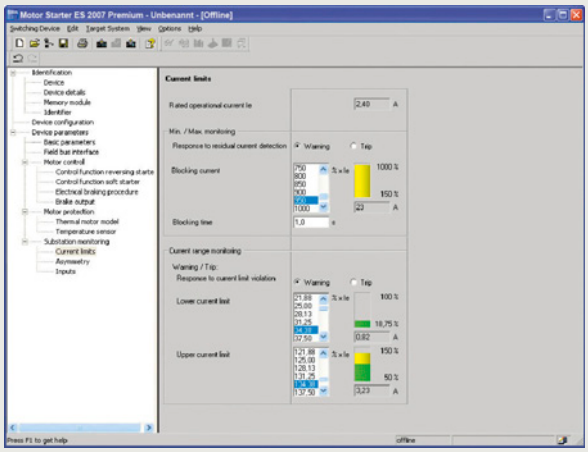
## Motor Starter ES

### Overview




Motor Starter ES for parameterization, monitoring, diagnostics and testing of motor starters

**More information**

Industry Mall, see www.siemens.com/product?3ZS1

Technical specifications and system requirements, see https://support.industry.siemens.com/cs/ww/en/ps/16713/td

Motor Starter ES is used for start-up, parameterization, diagnostics, documentation and the preventative maintenance of the motor starters in the SIMATIC ET 200S, ET 200pro, ECOFAST and M200D product families.

The software program is available in three versions which differ in their user-friendliness, scope of functions and price.

For detailed information on the Motor Starter ES software, see page 14/10.

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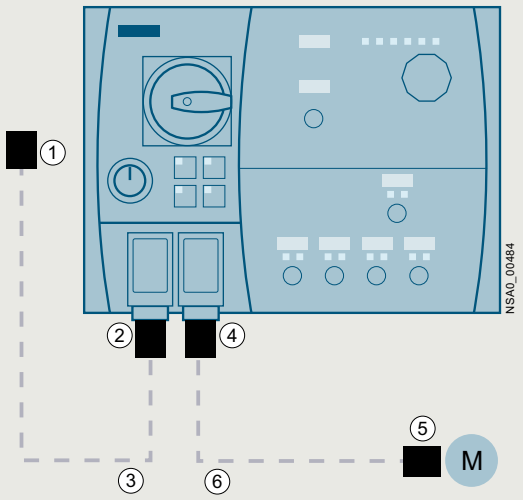
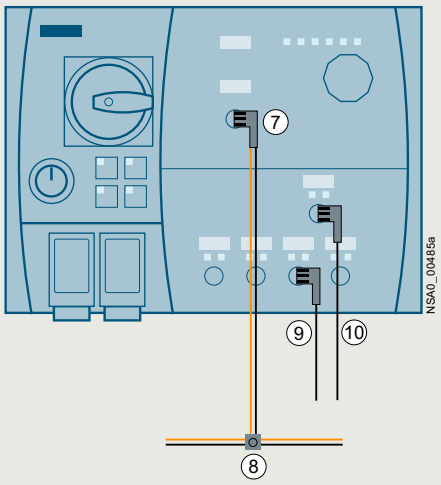
## Overview



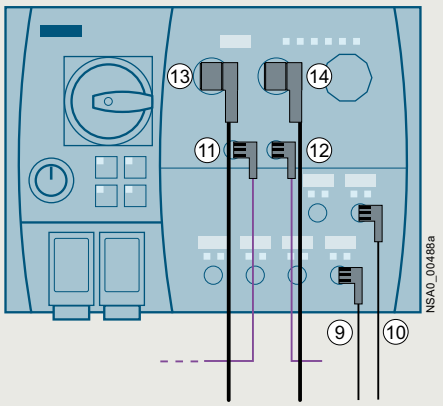

1. Power feeder plug
2. Power connection plug
3. Power connecting cable
4. Motor connection plug
5. Motor plug
6. Motor cable

Power and motor connection on the M200D motor starter
(in this example: M200D for AS-i)



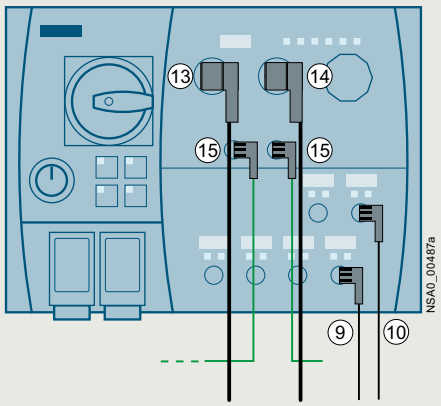

7. Connection for motor control with AS-i communication
8. AS-Interface M12 feeder
9. Connection for digital input
(IO communication, 5-pole)
10. Connection for digital output
(IO communication, 4- or 5-pole)

Communication link using AS-Interface and digital inputs and outputs




9. Connection for digital input
(IO communication, 5-pole)
10. Connection for digital output
(IO communication, 4- or 5-pole)
11. PROFIBUS connection (input)
12. PROFIBUS connection (loop)
13. Connection for 24 V supply (infeed)
14. Connection for 24 V supply (loop)

Communication link using PROFIBUS and digital inputs and outputs




9. Connection for digital input
(IO communication, 5-pole)
10. Connection for digital output
(IO communication, 4- or 5-pole)
13. Connection for 24 V supply (infeed)
14. Connection for 24 V supply (loop)
15. Connection with PROFINET
(input on the left, loop on the right)

Communication link using PROFINET and digital inputs and outputs

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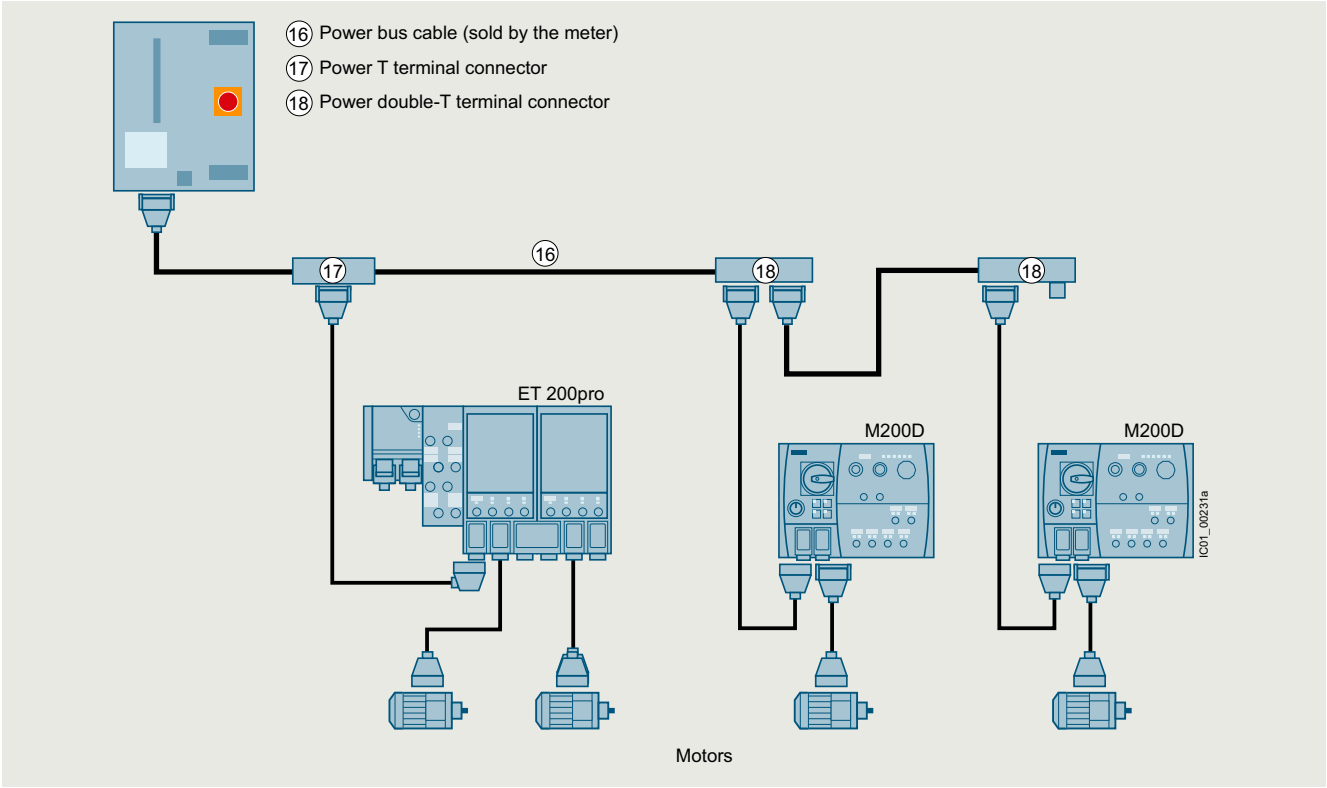
## For all M200D motor starters




Power supply to the motors via the power bus with power T and double-T terminal connectors linked by power bus cables, spur lines to the field devices (motor starters), and power loop-through connections to the motors via motor connecting cables

***Power bus***

The power supply to the field devices (ET 200pro motor starters, M200D motor starters) is provided via the power bus, in which the power T terminal connectors or power double-T terminal connectors are connected by power bus cables.

***Feeders***

From the terminal connectors, spur lines with Han Q4/2 plugs lead to the field devices, from which the motors are supplied with power via motor connecting cables.

***Interruption-free thanks to power terminal connectors***

In finger-safe connection technology the power T terminal connectors and power double-T terminal connectors connect the components of a feeder to the power bus. They ensure interruption-free operation, i.e. when the components are plugged in, the power bus is not interrupted.

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## Selection and ordering data

The accessories listed below represent a basic selection sorted by:

- Accessories for all M200D motor starters
- Accessories for M200D motor starters for AS-Interface
- Accessories for M200D motor starters for PROFIBUS
- Accessories for M200D motor starters for PROFINET

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Mountable accessories** | | | | | |
| **M200D protective brackets** | **3RK1911-3BA00** | | 1 | 1 unit | 42D |
| **Incoming power supply** | | | | | |
| ① **Power feeder plugs**<br>Connector set for power supply, e.g. for connecting to T terminal connectors, comprising a coupling enclosure, straight outgoing feeder (with bracket), pin insert for HAN Q4/2, incl. gland | | | | | |
| • 5 male contacts, 2.5 mm² | **3RK1911-2BS60** | | 1 | 1 unit | 42D |
| • 5 male contacts, 4 mm² | **3RK1911-2BS20** | | 1 | 1 unit | 42D |
| • 5 male contacts, 6 mm² | **3RK1911-2BS40** | | 1 | 1 unit | 42D |
| ② **Power connection plugs**<br>Connector set for energy supply for connection to M200D motor starters, comprising a cable-end connector hood, angled outgoing feeder, female insert for HAN Q4/2, incl. gland | | | | | |
| • 5 female contacts, 2.5 mm², 2 female contacts, 0.5 mm² | **3RK1911-2BE50** | | 1 | 1 unit | 42D |
| • 5 female contacts, 4 mm², 2 female contacts, 0.5 mm² | **3RK1911-2BE10** | | 1 | 1 unit | 42D |
| • 5 female contacts, 6 mm², 2 female contacts, 0.5 mm² | **3RK1911-2BE30** | | 1 | 1 unit | 42D |
| ② + ③ **Power connecting cables**<br>Assembled at one end with "N" and jumper pin 11 and 12 for plug monitoring, with HAN Q4/2, angled; open at one end; 5 x 4 mm² | | | | | |
| • Length 1.5 m | **3RK1911-0DC13** | | 1 | 1 unit | 42D |
| • Length 5.0 m | **3RK1911-0DC33** | | 1 | 1 unit | 42D |
| **Motor cables** | | | | | |
| ④ **Motor connection plugs**<br>Connector set for motor cable for connection to M200D motor starters, comprising a cable-end connector hood, angled outgoing feeder, pin insert for HAN Q8/0, incl. gland | | | | | |
| • 8 male contacts, 1.5 mm² | **3RK1902-0CE00** | | 1 | 1 unit | 42D |
| • 6 male contacts, 2.5 mm² | **3RK1902-0CC00** | | 1 | 1 unit | 42D |
| ⑤ **Motor plugs**<br>Connector set for motor cable for connection to motors, comprising a cable-end connector hood, straight outgoing feeder, female insert for HAN 10e, incl. star jumper, incl. gland | | | | | |
| • 7 female contacts, 1.5 mm² | **3RK1911-2BM21** | | 1 | 1 set | 42D |
| • 7 female contacts, 2.5 mm² | **3RK1911-2BM22** | | 1 | 1 set | 42D |
| ④ + ⑥ **Motor cables, assembled at one end**<br>For connection to M200D motor starter, HAN Q8/0, angled, length 5 m | | | | | |
| • Motor cables for motor without brake, 4 x 1.5 mm² | **3RK1911-0EB31** | | 1 | 1 unit | 42D |
| • Motor cables for motor without brake with thermistor, 6 x 1.5 mm² | **3RK1911-0EF31** | | 1 | 1 unit | 42D |
| • Motor cables for motor with brake actuation, brake voltage 400 V AC or 180 V DC, 6 x 1.5 mm² | **3RK1911-0ED31** | | 1 | 1 unit | 42D |
| • Motor cables for motor with brake actuation, brake voltage 400 V AC or 180 V DC and thermistor, 8 x 1.5 mm² | **3RK1911-0EG31** | | 1 | 1 unit | 42D |
| • Motor cables for motor with brake actuation, brake voltage 230 V AC, 6 x 1.5 mm² | **3RK1911-0EH31** | | 1 | 1 unit | 42D |
| • Motor cables for motor with brake actuation, brake voltage 230 V AC and thermistor, 8 x 1.5 mm² | **3RK1911-0EE31** | | 1 | 1 unit | 42D |

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## For all M200D motor starters

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Power bus** | | | | | |
| ⑰ **Power T terminal connectors**<br>For 400 V AC, for connection of feeders (e.g. motor starters) by means of standard round cable at any point of the power bus, by insulation displacement connection, used with preassembled bus segments | | | | | |
| • 2.5 mm²/4 mm² | **3RK1911-2BF01** | | 1 | 1 unit | 42D |
| • 4 mm²/6 mm² | **3RK1911-2BF02** | | 1 | 1 unit | 42D |
| ⑱ **Power double-T terminal connectors**<br>For 400 V AC, for connection of feeders (e.g. motor starters) by means of standard round cable at any point of the power bus, by insulation displacement connection, used with preassembled bus segments, connection of two motor starters possible | | | | | |
| • 4 mm²/6 mm² | **3RK1911-2BG02** | | 1 | 1 unit | 42D |
| **Sealing set (comprising 2 seals)**<br>For power T/power double-T terminal connectors | | | | | |
| • For power cables with | | | | | |
| - Ø 10 ... 13 mm | **3RK1911-5BA00** | | 1 | 1 unit | 42D |
| - Ø 13 ... 16 mm | **3RK1911-5BA10** | | 1 | 1 unit | 42D |
| - Ø 16 ... 19 mm | **3RK1911-5BA20** | | 1 | 1 unit | 42D |
| - Ø 19 ... 22 mm | **3RK1911-5BA30** | | 1 | 1 unit | 42D |
| • Blanking plugs | **3RK1911-5BA50** | | 1 | 1 unit | 42D |
| **Further accessories for power connections** | | | | | |
| **Crimping tools for pins/sockets 4 mm² and 6 mm²** | **3RK1902-0CW00** | | 1 | 1 unit | 42D |
| **Dismantling tools** | | | | | |
| • For male and female contacts for 9-pole HAN Q4/2 inserts | **3RK1902-0AB00** | | 1 | 1 unit | 42D |
| • For male and female contacts for 9-pole HAN Q8 inserts | **3RK1902-0AJ00** | | 1 | 1 unit | 42D |
| **Sealing caps**<br>For 9-pole power sockets | | | | | |
| • 1 unit per pack | **3RK1902-0CK00** | | 1 | 1 unit | 42D |
| • 10 units per pack | **3RK1902-0CJ00** | | 1 | 10 units | 42D |

3RK1902-0CW00

3RK1902-0CK00



* You can order this quantity or a multiple thereof.
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**For all M200D motor starters**

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Motor control with I/O communication** | | | | | | |
| 3RK1902-4BA00-5AA0 | **M12 plugs, straight**<br>Screw fixing, 5-pole screw terminals, max. 0.75 mm², A-coded, max. 4 A | **3RK1902-4BA00-5AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4DA00-5AA0 | ⑩ **M12 plugs, angled**<br>Screw fixing, 5-pole screw terminals, max. 0.75 mm², A-coded, max. 4 A | **3RK1902-4DA00-5AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4H...-5AA0 | ⑨, ⑩ **Control cables, assembled at one end**<br>M12 plug, angled, screw fixing, 5-pole, 5 x 0.34 mm², A-coded, black PUR sheath, max. 4 A | | | | | |
| | • Cable length 1.5 m | **3RK1902-4HB15-5AA0** | | 1 | 1 unit | 42D |
| | • Cable length 5 m | **3RK1902-4HB50-5AA0** | | 1 | 1 unit | 42D |
| | • Cable length 10 m | **3RK1902-4HC01-5AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4PB15-3AA0 | **Control cables, assembled at both ends**<br>Straight M12 plug, straight M12 socket, screw fixing, 3-pole, 3 x 0.34 mm², A-coded, black PUR sheath, max. 4 A | | | | | |
| | • Cable length 1.5 m | **3RK1902-4PB15-3AA0** | | 1 | 1 unit | 42D |
| **Further accessories** | | | | | | |
| 3RK1922-3BA00 | **Handheld devices**<br>For M200D motor starters (or for ET 200pro and ET 200S High Feature motor starters) for local operation.<br>The motor starter-specific serial interface cables must be ordered separately.<br>The RS 232 interface cable 3RK1922-2BP00 is used for the MS M200D. | **3RK1922-3BA00** | | 1 | 1 unit | 42D |
| | **RS 232 interface cable**<br>Serial data connection between M200D (or ET 200pro) motor starters and the RS 232 interface of a PC/PG/laptop (with the Motor Starter ES software) or the handheld device 3RK1922-3BA00 | **3RK1922-2BP00** | | 1 | 1 unit | 42D |
| | **USB interface cable, 2.5 m**<br>Serial data connection between M200D (or ET 200pro) motor starters and the USB interface of a PC/PG/laptop (with the Motor Starter ES software). | **6SL3555-0PA00-2AA0** | | 1 | 1 unit | 368 |
| 3RK1901-1KA00 | **M12 sealing caps**<br>For sealing unused M12 input or output sockets and M12 sockets for PROFIBUS and PROFINET communications modules (one set contains ten sealing caps) | **3RK1901-1KA00** | | 100 | 10 units | 42C |
| 3SU1950-0FB80-0AA0 | **RONIS SB30 keys**<br>Spare key for M200D for "manual local control" ordering option | **3SU1950-0FB80-0AA0** | | 1 | 1 unit | 41J |

For more connection technology products, see https://support.industry.siemens.com/cs/ww/en/view/65355810.

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## For M200D motor starters for AS-Interface

### Selection and ordering data

| Version | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Motor control with AS-i communication** | | | | | | | | |
| 3RK1902-4GB50-4AA0 | ⑦ **Control cables, assembled at one end** M12 socket, angled, screw fixing, 4-pole, 4 x 0.34 mm², A-coded, black PUR sheath, max. 4 A | | | | | | | |
| | • Cable length 5 m | | | **3RK1902-4GB50-4AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4CA00-4AA0 | ⑦ **M12 sockets, angled** For screw fixing, 4-pole screw terminals, max. 0.75 mm², A-coded, max. 4 A | | | **3RK1902-4CA00-4AA0** | | 1 | 1 unit | 42D |
| 3RK1901-2NR21 | ⑧ **AS-Interface M12 feeders** | | | | | | | |
| | For flat cable | For | Cable length | Cable end in feeder | | | | |
| | AS-i/$U_{aux}$ | M12 socket | -- | Not available | **3RK1901-2NR20** | | 1 | 1 unit | 42C |
| | | M12 cable box | 1 m | Not available | **3RK1901-2NR21** | | 1 | 1 unit | 42C |
| | | | 2 m | Not available | **3RK1901-2NR22** | | 1 | 1 unit | 42C |
| 3RK1901-1MN00 | **Cable end terminators** For sealing of open cable ends (AS-Interface shaped cable) in IP67 | | | | **3RK1901-1MN00** | | 1 | 10 units | 42C |
| 3RX90..-0AA00 | **AS-Interface shaped cables,** see also page 2/76 | | | | | | | |
| | Material | Color | Quantity | | | | | |
| | Rubber | Yellow (AS-Interface) | 100 m roll | | **3RX9010-0AA00** | | 1 | 1 unit | 42C |
| | | | 1 km drum | | **3RX9012-0AA00** | | 1 | 1 unit | 42C |
| | | Black (24 V DC) | 100 m roll | | **3RX9020-0AA00** | | 1 | 1 unit | 42C |
| | | | 1 km drum | | **3RX9022-0AA00** | | 1 | 1 unit | 42C |
| | TPE | Yellow (AS-Interface) | 100 m roll | | **3RX9013-0AA00** | | 1 | 1 unit | 42C |
| | | | 1 km drum | | **3RX9014-0AA00** | | 1 | 1 unit | 42C |
| | | Black (24 V DC) | 100 m roll | | **3RX9023-0AA00** | | 1 | 1 unit | 42C |
| | | | 1 km drum | | **3RX9024-0AA00** | | 1 | 1 unit | 42C |
| | TPE special version according to UL Class 2 | Yellow (AS-Interface) | 100 m roll | | **3RX9017-0AA00** | | 1 | 1 unit | 42C |
| | | Black (24 V DC) | 100 m roll | | **3RX9027-0AA00** | | 1 | 1 unit | 42C |
| | PUR | Yellow (AS-Interface) | 100 m roll | | **3RX9015-0AA00** | | 1 | 1 unit | 42C |
| | | | 1 km drum | | **3RX9016-0AA00** | | 1 | 1 unit | 42C |
| | | Black (24 V DC) | 100 m roll | | **3RX9025-0AA00** | | 1 | 1 unit | 42C |
| | | | 1 km drum | | **3RX9026-0AA00** | | 1 | 1 unit | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**For M200D motor starters for AS-Interface**

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Further accessories** | | | | | | |
| 3RK1904-2AB02 | **AS-Interface addressing unit V3.0**<br>• For AS-Interface modules and sensors and actuators with integrated AS-Interface according to AS-i specification V3.0<br>• For setting the AS-i address of standard slaves, and slaves with extended addressing mode (A/B slaves)<br>• With input/output test function and many other commissioning functions<br>• Battery operation with four type AA batteries (IEC LR6, NEDA 15)<br>• Scope of supply:<br>- Addressing unit with four batteries<br>- Addressing cable, with M12 plug to addressing plug (hollow plug), length 1.5 m | **3RK1904-2AB02** | | 1 | 1 unit | 42C |
| 3RK1902-4PB15-3AA0 | **M12 addressing cables to M12**<br>• Standard M12 cable for addressing slaves with M12 connection,e.g. K60R modules<br>• When using the current version of the 3RK1904-2AB01 addressing unit<br>• 1.5 m | **3RK1902-4PB15-3AA0** | | 1 | 1 unit | 42D |
| **Equipment manuals** | | | | | | |
| | **M200D AS-Interface Basic motor starters,** see https://support.industry.siemens.com/cs/ww/en/view/35016496 | | | | | |
| | **M200D AS-Interface Standard motor starters,** see https://support.industry.siemens.com/cs/ww/en/view/38722160 | | | | | |

6

* You can order this quantity or a multiple thereof.
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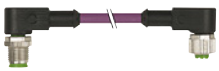
## For M200D motor starters for PROFIBUS

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Motor control with PROFIBUS** | | | | | | |
| 3RK1902-1DA00 | **M12 plugs, angled**<br>For screw fixing, 5-pole screw terminal, max. 0.75 mm², B-coded, no terminating resistor | | | | | |
| | • ⑪ 5 female contacts | **3RK1902-1DA00** | | 1 | 1 unit | 42D |
| 3RK1902-1BA00 | • ⑫ 5 male contacts | **3RK1902-1BA00** | | 1 | 1 unit | 42D |
| 3RK1902-1G. | **Control cables, assembled at one end**<br>M12, screw fixing, angled, B-coded, no terminating resistor | | | | | |
| | • ⑪ 5 female contacts, 3 m | **3RK1902-1GB30** | | 1 | 1 unit | 42D |
| | • ⑪ 5 female contacts, 5 m | **3RK1902-1GB50** | | 1 | 1 unit | 42D |
| | • ⑪ 5 female contacts, 10 m | **3RK1902-1GC10** | | 1 | 1 unit | 42D |
|  3RK1902-1N. | ⑪ ⑫ **Control cables, assembled at both ends**<br>M12, screw fixing, angled, 5-pole plug/socket connectors, B-coded, no terminating resistor | | | | | |
| | • 3.0 m | **3RK1902-1NB30** | | 1 | 1 unit | 42D |
| | • 5.0 m | **3RK1902-1NB50** | | 1 | 1 unit | 42D |
| | • 10.0 m | **3RK1902-1NC10** | | 1 | 1 unit | 42D |
| **Further accessories** | | | | | | |
| | **PROFIBUS trailing cables**<br>Max. acceleration 4 m/s², at least 3 000 000 bending cycles, bending radius at least 60 mm, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m | **6XV1830-3EH10** | | 1 | 1 M | 5K2 |
| | **PROFIBUS FC Food bus cables**<br>With PE outer sheath for operation in the food and beverage industry, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m | **6XV1830-0GH10** | | 1 | 1 M | 5K2 |
| | **PROFIBUS FC Robust bus cables**<br>With PUR outer sheath for operation in environments exposed to chemicals and mechanical loads, 2-core, shielded, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m | **6XV1830-0JH10** | | 1 | 1 M | 5K2 |
| | **Power cables**<br>5-core, 5 x 1.5 mm², trailing, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m | **6XV1830-8AH10** | | 1 | 1 M | 5K2 |
| **Connection for 24 V power supply of the M200D PROFIBUS/PROFINET** | | | | | | |
| | See page 9/43 | | | | | |
| **Equipment manual** | | | | | | |
| | **M200D PROFIBUS/PROFINET motor starters**, see https://support.industry.siemens.com/cs/ww/en/view/38823402 | | | | | |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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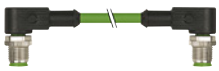
## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Motor control with PROFINET** | | | | | |
| 3RK1902-2H. | | | | | |
| ⑮ **M12 plugs, angled**<br>For screw fixing, 4-pole screw terminal, max. 0.75 mm², angled, D-coded | | | | | |
| • 4 male contacts | **3RK1902-2DA00** | | 1 | 1 unit | 42D |
| ⑮ **Control cables, assembled at one end**<br>M12 for screw fixing, angled, 4-pole, D-coded, | | | | | |
| • 4 male contacts, 3 m | **3RK1902-2HB30** | | 1 | 1 unit | 42D |
| • 4 male contacts, 5 m | **3RK1902-2HB50** | | 1 | 1 unit | 42D |
| • 4 male contacts, 10 m | **3RK1902-2HC10** | | 1 | 1 unit | 42D |
|  3RK1902-2N. | | | | | |
| ⑮ **Control cables, assembled at both ends**<br>M12 for screw fixing, angled at both ends, 4-pole, D-coded, male contacts at both ends | | | | | |
| • 3 m | **3RK1902-2NB30** | | 1 | 1 unit | 42D |
| • 5 m | **3RK1902-2NB50** | | 1 | 1 unit | 42D |
| • 10 m | **3RK1902-2NC10** | | 1 | 1 unit | 42D |
| **Further accessories** | | | | | |
| **PROFINET IE FC TP standard cable GP 2 x 2**<br>Sold by the meter | **6XV1840-2AH10** | | 1 | 1 M | 5K1 |
| **PROFINET IE FC TP trailing cable 2 x 2**<br>Sold by the meter | **6XV1840-3AH10** | | 1 | 1 M | 5K1 |
| **PROFINET IE FC TP trailing cable GP 2 x 2**<br>Sold by the meter | **6XV1870-2D** | | 1 | 1 M | 5K2 |
| **PROFINET IE FC TP torsion cable 2 x 2**<br>Sold by the meter | **6XV1870-2F** | | 1 | 1 M | 5K2 |
| **PROFINET IE FC TP marine cable, 4-core**<br>Sold by the meter | **6XV1840-4AH10** | | 1 | 1 M | 5K1 |
| **Power cables**<br>5-core, 5 x 1.5 mm², trailing, sold by the meter, minimum order quantity 20 m, maximum order quantity 1 000 m | **6XV1830-8AH10** | | 1 | 1 M | 5K2 |

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Connection for 24 V power supply of the M200D PROFIBUS/PROFINET** | | | | | |
| 3RK1902-3DA00 | | | | | |
| **Plugs**<br>On M200D, 7/8" for screw fixing, angled, screw terminal, 1.5 mm² | | | | | |
| • ⑬ 5 female contacts | **3RK1902-3DA00** | | 1 | 1 unit | 42D |
| 3RK1902-3BA00 | | | | | |
| • ⑭ 5 male contacts | **3RK1902-3BA00** | | 1 | 1 unit | 42D |
| 3RK1902-3G. | | | | | |
| ⑬ **Supply lines, assembled at one end**<br>7/8" for screw fixing, angled, 1.5 mm² | | | | | |
| • 5 female contacts, 3 m | **3RK1902-3GB30** | | 1 | 1 unit | 42D |
| • 5 female contacts, 5 m | **3RK1902-3GB50** | | 1 | 1 unit | 42D |
| • 5 female contacts, 10 m | **3RK1902-3GC10** | | 1 | 1 unit | 42D |
| 3RK1902-3N. | | | | | |
| ⑬ ⑭ **Supply lines, assembled at both ends**<br>7/8", for screw fixing, angled at both ends, 5-pole plug/socket connectors, 1.5 mm² | | | | | |
| • 3 m | **3RK1902-3NB30** | | 1 | 1 unit | 42D |
| • 5 m | **3RK1902-3NB50** | | 1 | 1 unit | 42D |
| • 10 m | **3RK1902-3NC10** | | 1 | 1 unit | 42D |
| 6ES7194-3JA00-0AA0 | | | | | |
| **7/8" sealing caps**<br>1 pack = 10 units | **6ES7194-3JA00-0AA0** | | 1 | 10 units | 250 |
| **Equipment manual** | | | | | |
| **M200D PROFIBUS/PROFINET motor starters**, see https://support.industry.siemens.com/cs/ww/en/view/38823402 | | | | | |

* You can order this quantity or a multiple thereof.
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## Notes

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**Price groups**
PG 41B, 41E, 41F, 41H, 41L, 42F, 42J

10/2 **Introduction**

**SIMOCODE 3UF motor management and control devices**
SIMOCODE pro 3UF7 motor management and control devices
10/5 General data
10/12 Basic units
10/15 Expansion modules
10/17 Fail-safe expansion modules
10/18 Accessories
3UF18 current transformers for overload protection
10/21 Basic units and accessories

10/22 **LOGO! logic modules**

**Relays**
Timing relays
10/23 General data
10/24 SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm
10/36 SIRIUS 3RP20 timing relays, 45 mm
10/42 7PV15 timing relays, 17.5 mm
3/95 SIRIUS 3RA28 solid-state time-delay auxiliary switches for mounting on 3RT2 contactors and 3RH2 contactor relays
3/100 SIRIUS 3RA28 function modules for mounting on 3RT2 contactors and 3RH2 contactor relays
3/96 SIRIUS 3RT19 solid-state time-delay auxiliary switches for mounting on 3RT1 contactors
SIRIUS 3RR21, 3RR22 monitoring relays for mounting on 3RT2 contactors
10/47 Current and active current monitoring
SIRIUS 3RR24 monitoring relays for mounting on 3RT2 contactors for IO-Link
10/55 Current and active current monitoring
SIRIUS 3UG5 monitoring relays for stand-alone installation
10/62 DC load monitoring
SIRIUS 3UG45, 3UG46 monitoring relays for stand-alone installation
10/67 General data
10/69 Line monitoring
10/74 Voltage monitoring
10/77 Current monitoring
10/79 Power factor and active current monitoring
Residual-current monitoring
10/82 - Residual-current monitoring relays
10/84 - 3UL23 residual-current transformers
10/85 Insulation monitoring
10/89 Level monitoring
10/92 Speed monitoring
10/95 Accessories
SIRIUS 3UG48 monitoring relays for stand-alone installation for IO-Link
10/96 General data
10/99 Line monitoring
10/102 Voltage monitoring
10/105 Current monitoring
10/108 Power factor and active current monitoring
Residual-current monitoring
10/112 - Residual-current monitoring relays
10/84 - 3UL23 residual-current transformers
10/115 Speed monitoring
10/118 Accessories
SIRIUS 3RS2 temperature monitoring relays
10/119 General data
10/127 Basic units
10/128 Accessories
SIRIUS 3RN2 thermistor motor protection
10/129 General data
10/136 Basic units
10/137 Accessories
Coupling relays and signal converters
5/1 Coupling relays
3/138 3TG10 power relays/miniature contactors
10/138 SIRIUS 3RS70 signal converters

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## Introduction

### Overview

| Type | SIMOCODE pro C | SIMOCODE pro V PROFINET General Performance | SIMOCODE pro S General Performance | SIMOCODE pro V High Performance PROFIBUS/PROFINET Modbus RTU/EtherNet/IP | Page |
|---|---|---|---|---|---|
| **SIMOCODE pro 3UF7 motor management and control devices** | | | | | |
| **Basic units** | ✓ | ✓ | ✓ | ✓ | 10/12 |
| **Current measuring modules** | ✓ | ✓ | ✓ | ✓ | 10/13 |
| **Current/voltage measuring modules** | -- | -- | -- | ✓ | 10/13 |
| **Operator panels** | ✓ | ✓ | ✓ | ✓ | 10/14 |
| **Operator panels with display** | -- | -- | -- | ✓ | 10/14 |
| **Expansion modules** | -- | ✓ | ✓ | ✓ | 10/15 |
| **Fail-safe expansion modules** | -- | -- | -- | ✓ | 10/17 |
| **Current transformers** | ✓ | ✓ | ✓ | ✓ | 10/21 |
| **SIMOCODE ES (TIA Portal)** | ✓ | ✓ | ✓ | ✓ | 14/12 |
| **SIMOCODE pro block library for SIMATIC PCS 7** | ✓ | ✓ | ✓ | ✓ | 14/15 |

✓ Available
-- Not available

| Type | 3RP25 | 3RP20 | 7PV15 |
|---|---|---|---|
| **Timing relays** | | | |
| **Enclosures:** | | | |
| • 17.5 mm industry and household equipment installation | ✓ | -- | ✓ |
| • 22.5 mm industry | ✓ | -- | -- |
| • 45 mm industry | -- | ✓ | -- |
| **Monofunction** | ✓ | ✓ | ✓ |
| **Multifunction** | ✓ | ✓ | ✓ |
| **Combination voltage** | ✓ | ✓ | ✓ |
| **Wide voltage range** | ✓ | ✓ | ✓ |
| **Application:** | | | |
| • Control systems and mechanical engineering | ✓ | ✓ | ✓ |
| • Infrastructure | -- | -- | ✓ |
| **Page** | 10/24 | 10/36 | 10/42 |

✓ Corresponds to or available
-- Does not correspond to or not available

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| Type | 3UG546 | 3UG451., 3UG461. | 3UG463. | 3RR21, 3RR22, 3UG4621, 3UG4622 | 3UG4641 | 3UG4625 with 3UL23 | 3UG458. | 3UG4501 | 3UG4651 | Page |
|---|---|---|---|---|---|---|---|---|---|---|
| **Monitoring relays** | | | | | | | | | | |
| **DC load monitoring** | ✓ | -- | -- | -- | -- | -- | -- | -- | -- | 10/62 |
| **Line monitoring** | -- | ✓ | -- | -- | -- | -- | -- | -- | -- | 10/69 |
| **Voltage monitoring** | -- | -- | ✓ | -- | -- | -- | -- | -- | -- | 10/74 |
| **Current monitoring** | -- | -- | -- | ✓ | -- | -- | -- | -- | -- | 10/47, 10/77 |
| **Active current monitoring** | -- | -- | -- | 3RR22 ✓ | ✓ | -- | -- | -- | -- | 10/47, 10/79 |
| **Power factor monitoring** | -- | -- | -- | -- | ✓ | -- | -- | -- | -- | 10/79 |
| **Residual-current monitoring** | -- | -- | -- | -- | -- | ✓ | -- | -- | -- | 10/82 |
| **Insulation monitoring** | -- | -- | -- | -- | -- | -- | ✓ | -- | -- | 10/85 |
| **Level monitoring** | -- | -- | -- | -- | -- | -- | -- | ✓ | -- | 10/89 |
| **Speed monitoring** | -- | -- | -- | -- | -- | -- | -- | -- | ✓ | 10/92 |

✓ Available
-- Not available

| Type | 3UG481. | 3UG4832 | 3RR24 | 3UG4822 | 3UG4841 | 3UG4825 with 3UL23 | 3UG4851 | Page |
|---|---|---|---|---|---|---|---|---|
| **Monitoring relays for IO-Link** | | | | | | | | |
| **Line monitoring** | ✓ | -- | -- | -- | -- | -- | -- | 10/99 |
| **Voltage monitoring** | -- | ✓ | -- | -- | -- | -- | -- | 10/102 |
| **Current monitoring** | -- | -- | ✓ | ✓ | -- | -- | -- | 10/55, 10/105 |
| **Power factor and active current monitoring** | -- | -- | ✓ | -- | ✓ | -- | -- | 10/55, 10/108 |
| **Residual-current monitoring** | -- | -- | -- | -- | -- | ✓ | -- | 10/112 |
| **Speed monitoring** | -- | -- | -- | -- | -- | -- | ✓ | 10/115 |

✓ Available
-- Not available

| Type | 3RS2 | 3RN2 | 3RS70 | Page |
|---|---|---|---|---|
| **Temperature monitoring relays** | | | | |
| **Temperature monitoring** | ✓ | -- | -- | 10/119 |
| **Temperature monitoring relays for IO-Link** | | | | |
| **Temperature monitoring for IO-Link** | ✓ | -- | -- | 10/119 |
| **Thermistor motor protection** | | | | |
| **Thermistor motor protection** | -- | ✓ | -- | 10/129 |
| **Signal converters** | | | | |
| **Single-range converters** | -- | -- | ✓ | 10/138 |
| **Multi-range converters** | -- | -- | ✓ | 10/138 |
| **Universal converters** | -- | -- | ✓ | 10/138 |

✓ Available
-- Not available

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## Introduction

### *Connection methods*

The monitoring and control devices are available with screw or spring-loaded terminals.

SIRIUS 3RP25 timing relays, 3UG458 insulation monitoring relays, SIRIUS 3RS2 temperature monitoring relays, SIRIUS 3RN2 thermistor motor protection and SIRIUS 3RS70 signal converters are available with screw terminals or spring-loaded terminals (push-in).

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals, spring-loaded terminals (push-in) |
| | The connection method is indicated in the corresponding tables by the respective symbol shown on orange backgrounds. |

### *"Increased safety" type of protection EEx e/d according to ATEX Directive 2014/34/EU*

The communication-capable, modularly designed SIMOCODE pro motor management system (SIRIUS Motor Management and Control Devices) protects motors of types of protection EEx e and EEx d in hazardous areas.

The SIRIUS 3RN2 thermistor motor protection relay protects motors with types of protection EEx e and EEx d in hazardous areas.

### *ATEX approval for operation in hazardous areas*

The SIRIUS SIMOCODE pro 3UF7 motor management system is certified for the protection of motors in hazardous areas according to

- ATEX Ex I (M2); equipment group I, category M2 (mining)
- ATEX Ex II (2) GD; equipment group II, category 2 in area GD

The SIRIUS 3RN2011, 3RN2012-...30, 3RN2013 and 3RN2023 thermistor motor protection relays for PTC sensors are certified according to ATEX Ex II (2) G and D for environments with explosive gas or dust loads.

### *Ordering notes for multi-unit packaging*

SIMOCODE pro S, SIRIUS 3RP25 timing relays, SIRIUS 3RS2 temperature monitoring relays, and SIRIUS 3RN2 thermistor motor protection can be ordered in practical and environmentally multi-unit packaging on request.

Multi-unit packaging with order code X90

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code **"X90"** must be specified.

Ordering examples:

- 3RP2505-1AB30-Z X90;
  Order quantity 16 items → Delivery of one pack containing 16 items
- 3RP2505-1BB30-Z X90;
  Order quantity 12 items → Delivery of one pack containing 12 items

For more information, see page 16/7.

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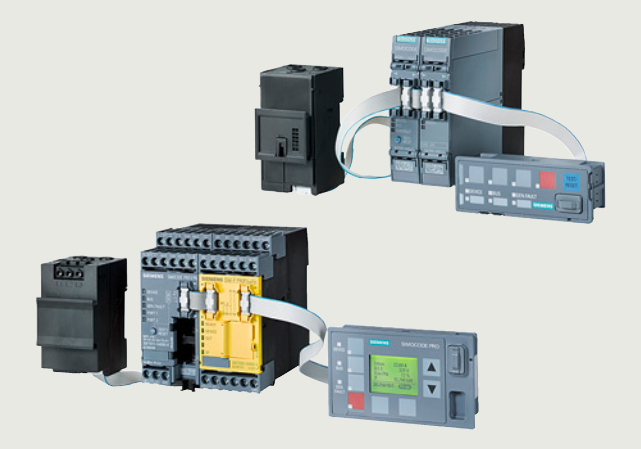
## Overview



SIMOCODE pro S and SIMOCODE pro V

**More information**

Homepage, see www.siemens.com/sirius-simocode

Industry Mall, see www.siemens.com/product?3UF7

TIA Selection Tool Cloud (TST Cloud)
- For SIMOCODE pro S, see www.siemens.com/tstcloud/?node=SimocodeProS
- For SIMOCODE pro V, see www.siemens.com/tstcloud/?node=SimocodeProV

SIMOCODE pro is a flexible, modular motor management system for motors with constant speeds in the low-voltage performance range. It optimizes the connection between I&C and motor feeder, increases plant availability and allows significant savings to be made for installation, commissioning, operation and preventive maintenance of a system.

SIMOCODE pro offers, for example:
- Multifunctional, electronic full motor protection that is independent of the automation system
- Integrated control functions instead of hardware for the motor control
- Detailed operating, service and diagnostics data
- Open communication via PROFIBUS DP, PROFINET/OPC UA, Modbus RTU or EtherNet/IP
- Safety relay function for the fail-safe disconnection of motors up to SIL 3 according to IEC 61508, IEC 62061 or PL e according to ISO 13849-1
- SIMOCODE ES is the software package for SIMOCODE pro parameterization, startup and diagnostics, see page 14/12.

***Device series***

Basic Performance with SIMOCODE pro C

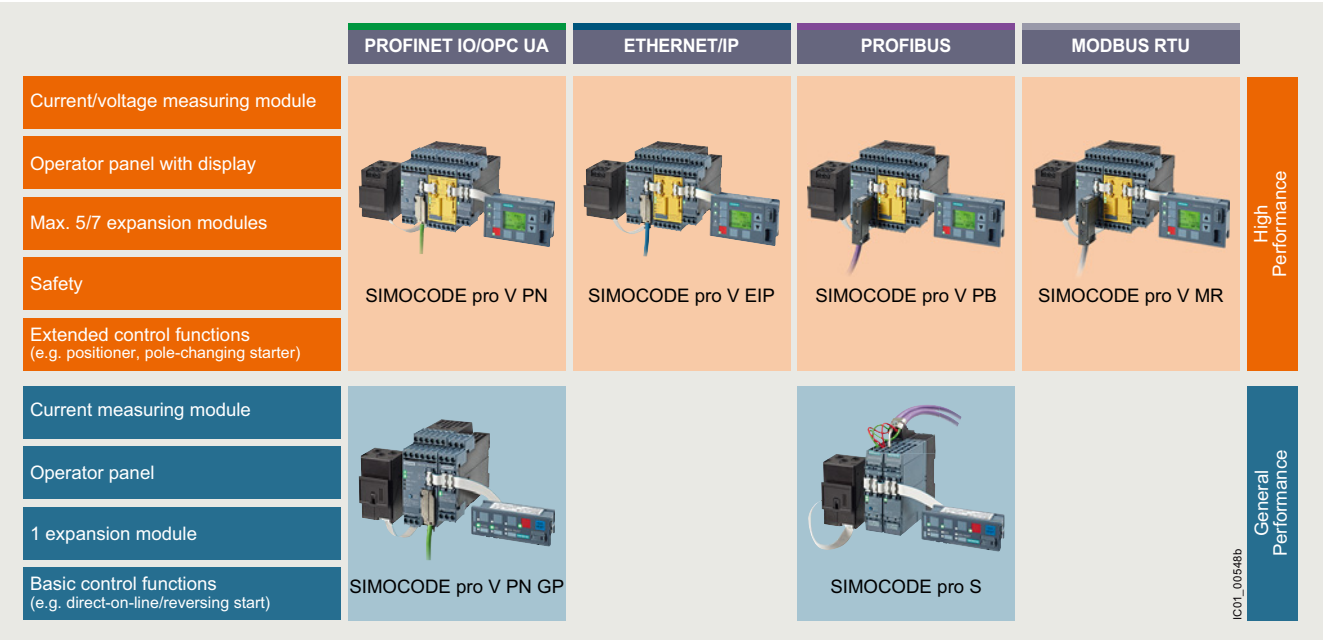
The compact system for direct-on-line starters and reversing starters or for controlling a motor starter protector.

General Performance with SIMOCODE pro S or SIMOCODE pro V PN GP

The smart system for direct-on-line, reversing, and star-delta (wye-delta) starters or for controlling a motor starter protector or soft starter. Its expandability with an expansion module/multi-function module provides comprehensive input/output project data volume, precise ground-fault detection via the 3UL23 residual-current transformers and temperature measurement.

High Performance with SIMOCODE pro V

The variable system with all control functions and with the possibility of expanding the inputs, outputs and functions of the system at will using expansion modules.




Device series

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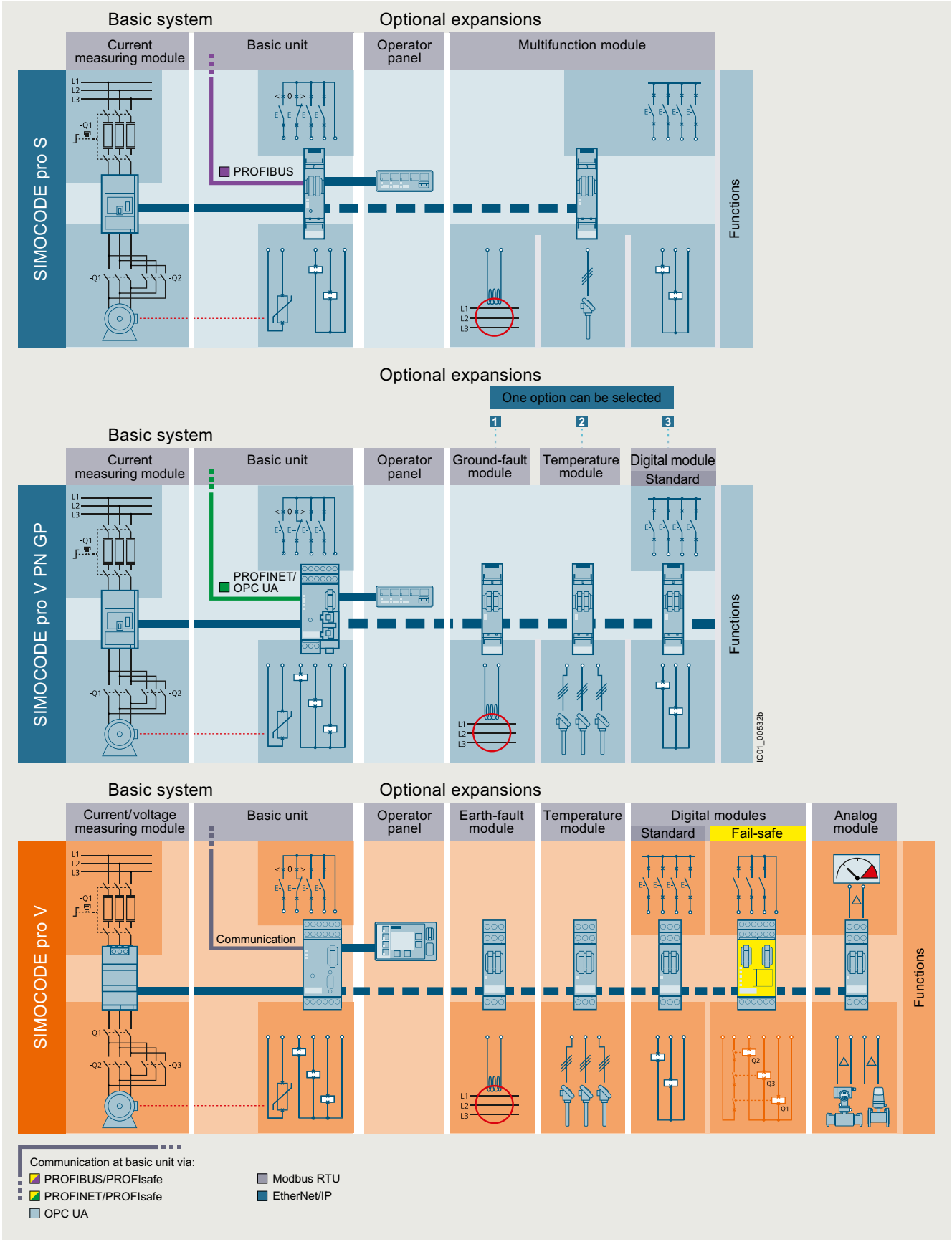
## General data




System structure

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| Expansion possibilities | SIMOCODE pro C Basic Performance PROFIBUS | SIMOCODE pro S General Performance PROFIBUS | SIMOCODE pro V General Performance PROFINET GP | SIMOCODE pro V High Performance PROFIBUS/ Modbus RTU | SIMOCODE pro V High Performance PROFINET/ EtherNet/IP |
|---|---|---|---|---|---|
| Operator panels | ✓ | ✓ | ✓ | ✓ | ✓ |
| Operator panels with display | -- | -- | -- | ✓ | ✓ |
| Current measuring modules | ✓ | ✓ | ✓ | ✓ | ✓ |
| Current/voltage measuring modules | -- | -- | -- | ✓ | ✓ |
| Expansion modules: | | | | | |
| • Digital modules | -- | -- | 1[2)] | 2 | 2 |
| • Fail-safe digital modules[1)] | -- | -- | -- | 1 | 1 |
| • Analog modules | -- | -- | -- | 1 | 2 |
| • Ground-fault modules | -- | -- | 1 | 1 | 1 |
| • Temperature modules | -- | -- | 1 | 1 | 2 |
| • Multifunction modules | -- | 1 | -- | -- | -- |

✓ Available
-- Not available

1) The fail-safe digital module can be used instead of one of the two digital modules.
2) Only monostable version can be used.

Per feeder each system always comprises one basic unit and one separate current measuring module. The two modules are connected together electrically through the system interface with a connecting cable and can be mounted mechanically connected as a unit (one behind the other) or separately (side by side). The motor current to be monitored is decisive only for the choice of the current measuring module.

An operator panel for mounting in the control cabinet door is optionally connectable through a second system interface on the basic unit. Both the current measuring module and the operator panel are electrically supplied by the basic unit through the connecting cable. More inputs, outputs and functions can be added to the SIMOCODE pro V and SIMOCODE pro S by means of optional expansion modules, thus supplementing the inputs and outputs already existing on the basic unit. With the DM-F Local and DM-F PROFIsafe fail-safe digital modules it is also possible to integrate the fail-safe disconnection of motors in the SIMOCODE pro V motor management system.

All modules are connected by connecting cables.
The connecting cables are available in various lengths.
The maximum distance between the modules (e.g. between the basic unit and the current measuring module) must not exceed 2.5 m. The total length of all the connecting cables per system interface of the basic unit may be up to 3 m.

***Article number scheme***

| Product versions | | Article number |
|---|---|---|
| **SIMOCODE pro motor management system** | | **3UF7 □□□ – 1 □□ 0 □ – 0** |
| Type of unit/module | e.g. 0 = basic unit | □ |
| Functional version of the module | e.g. 20 = SIMOCODE pro S | □□ |
| Connection type of the current transformer | e.g. A = through-hole technology | □ |
| Voltage version | e.g. B = 24 V DC | □ |
| Enclosure color | e.g. 1 = titanium gray | □ |
| Example | | **3UF7 020 – 1 AB 0 1 – 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Benefits

***General customer benefits***

- Integrating the whole motor feeder into the process control by means of PROFIBUS DP, PROFINET/OPC UA, Modbus RTU or EtherNet/IP significantly reduces the wiring between the motor feeder and the PLC
- Decentralization of the automated processes by means of configurable control and monitoring functions in the feeder saves resources in the automation system and ensures full functionality and protection of the feeder even if the I&C or bus system fails
- The acquisition and monitoring of operating, service and diagnostics data in the feeder and process control system increases plant availability as well as preventive maintenance and service-friendliness
- The high degree of modularity allows users to perfectly implement their plant-specific requirements for each motor feeder
- The SIMOCODE pro system offers functionally graded and space-saving solutions for each customer application
- The replacement of the control circuit hardware with integrated control functions decreases the number of hardware components and wiring required and in this way limits stock keeping costs and potential wiring errors
- The use of electronic full motor protection permits better utilization of the motors and ensures long-term stability of the tripping characteristic and reliable tripping even after years of service
- Thanks to the precision of the current, voltage, power and energy measurements (especially those acquired by the 2$^{nd}$-generation current/voltage measuring modules), costs can be internally allocated with a high degree of accuracy

***Multifunctional, electronic full motor protection for rated motor currents up to 820 A***

SIMOCODE pro offers comprehensive protection of the motor feeder by means of a combination of different, multi-step and delayable protection and monitoring functions:

- Inverse-time delayed electronic overload protection (CLASS 5E to 40E)
- Thermistor motor protection
- Phase failure/asymmetry protection
- Stall protection
- Monitoring of adjustable limit values for the motor current
- Voltage and power monitoring
- Monitoring of the power factor (motor idling/load shedding)
- Ground-fault monitoring
- Temperature monitoring, e.g. via Pt100/Pt1000
- Monitoring of operating hours, downtime and number of starts, etc.

***Recording of measuring curves***

SIMOCODE pro can record measuring curves and therefore is able, for example, to present the progression of motor current during motor startup.

***Flexible motor control implemented with integrated control functions (instead of comprehensive hardware interlocks)***

Many predefined motor control functions have already been integrated into SIMOCODE pro, including all necessary logic operations and interlocks:

- Overload relays
- Direct-on-line and reversing starters
- Star-delta (wye-delta) starters (also with direction reversal)
- Two speeds, motors with separate windings (pole-changing starter); also with direction reversal
- Two speeds, motors with separate Dahlander windings (also with direction reversal)
- Positioner actuation
- Solenoid valve actuation
- Actuation of a motor starter protector
- Soft starter actuation (also with direction reversal)

These control functions are predefined in SIMOCODE pro and can be freely assigned to the inputs and outputs of the device (including the PROFIBUS/PROFINET process image).

These predefined control functions can also be flexibly adapted to each customized configuration of a motor feeder by means of freely configurable logic modules (truth tables, counters, timers, edge evaluation, etc.) and with the help of standard functions (power failure monitoring, emergency start, external faults, etc.), without additional auxiliary relays being necessary in the control circuit.

SIMOCODE pro makes a lot of additional hardware and wiring in the control circuit unnecessary, which results in a high level of standardization of the motor feeder in terms of its design and circuit diagrams.

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***Detailed operating, service and diagnostics data***

SIMOCODE pro makes different operational, service and diagnostics data available and helps to detect potential faults in time and to prevent them by means of preventative measures. In the event of a malfunction, a fault can be diagnosed, localized and rectified very quickly – there are no or very short downtimes.

Operating data

- Motor switching state derived from the current flow in the main circuit
- All phase currents
- All phase voltages and phase-to-phase voltages
- Active power, apparent power and power factor
- Phase asymmetry and phase sequence
- Ground-fault current
- Frequency
- Time to trip
- Motor temperature
- Remaining cooling time etc.

Service data

- Motor operating hours
- Motor stop times
- Number of motor starts
- Number of overload trips
- Interval for compulsory testing of the enabling circuits
- Energy consumed
- Internal comments stored in the device etc.

Diagnostics data

- Numerous detailed early warning and fault messages
- Internal device fault logging with time stamp
- Time stamping of freely selectable status, alarm or fault messages etc.

***Easy operation and diagnostics***

Operator panel

The operator panel is used to control the motor feeder and can replace all conventional pushbuttons and indicator lights to save space. It makes SIMOCODE pro or the feeder directly operable in the control cabinet. It features all the status LEDs available on the basic unit and externalizes the system interface for simple parameterization or diagnostics on a PC/PG.

Operator panel with display

As an alternative to the 3UF720 standard operator panel for SIMOCODE pro V, a 3UF721 operator panel with display is also available. This can additionally indicate current measured values, operating and diagnostics data or status information of the motor feeder at the control cabinet. The pushbuttons of the operator panel can be used to control the motor. Furthermore, it is possible to set parameters such as rated motor current, limit values, etc. directly via the operator panel with display (with SIMOCODE pro V PROFIBUS as of E15, SIMOCODE pro V Modbus RTU as of E03 and with all SIMOCODE pro V PROFINET and EtherNet/IP).

***Communication***

SIMOCODE pro has either an integrated PROFIBUS DP or Modbus RTU interface (SUB-D or terminal connection) or a PROFINET or EtherNet/IP interface (2 x RJ45).

Fail-safe disconnection through PROFIBUS or PROFINET with the PROFIsafe profile is also possible in conjunction with a fail-safe controller (F-CPU) and the DM-F PROFIsafe fail-safe digital module.

SIMOCODE pro PROFIBUS

SIMOCODE pro PROFIBUS supports, for example:

- Cyclic services (DPV0) and acyclic services (DPV1)
- Extensive diagnostics and hardware interrupts
- Time stamp with high timing precision (SIMATIC S7) for SIMOCODE pro V
- DPV1 communication after the Y-Link

SIMOCODE pro PROFINET

SIMOCODE pro PROFINET supports, for example:

- Line and ring bus topology (for 2-port devices with an integrated switch)
- Media redundancy via MRP protocol (for 2-port devices with an integrated switch)
- Operating, service and diagnostics data via standard web browser
- OPC UA server for open communication with visualization and I&C system
- NTP-synchronized time
- Interval function and measured values for power management via PROFIenergy
- Module exchange without PC/memory module through proximity detection
- Extensive diagnostics and maintenance alarms

System redundancy with SIMOCODE pro PROFINET

All SIMOCODE PROFINET devices support the system redundancy mechanisms of PROFINET IO and therefore can be operated directly on fault-tolerant systems such as SIMATIC S7-400 H. As such, SIMOCODE pro can provide decisive added value also for the field level of plants in which plant availability and control system redundancy are priorities.

SIMOCODE pro Modbus RTU

SIMOCODE pro Modbus RTU supports, for example:

- Communication at 1 200/2 400/4 800/9 600/19 200 or 57 600 baud
- Access to freely parameterizable process image via Modbus RTU
- Access to all operating, service and diagnostics data via Modbus RTU

SIMOCODE pro EtherNet/IP

SIMOCODE pro EtherNet/IP supports, for example:

- Line and ring bus topology thanks to an integrated switch
- Ring structures via Device Level Ring (DLR) protocol
- Operating, service and diagnostics data via standard web browser
- NTP-synchronized time
- Parameter assignment via SIMOCODE ES V14 or higher – via local device interface and Ethernet

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## General data

Notes on security

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.

For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

***Autonomous operation***

An essential feature of SIMOCODE pro is the autonomous execution of all protection and control functions, even when communication to the I&C system is interrupted. This means that even in the event of bus system or automation system failure, full functionality of the feeder is ensured or a specific behavior can be parameterized in case of such a fault, e.g. targeted shutdown of the feeder or execution of particular parameterized control mechanisms (such as reversal of the direction of rotation).

***Advantages from integrated energy management***

As an integrated option for the TIA Portal, the SIMATIC Energy Suite couples energy management with automation efficiently, making energy consumption at your production facility transparent.

Thanks to the simplified configuration of energy-measuring components, e.g. SIMOCODE pro V, configuration effort is also clearly reduced.

Thanks to end-to-end connection with higher-level energy management systems or cloud-based services, you can seamlessly expand the recorded energy data to create a cross-site energy management system.

The advantages at a glance:

- Automatic generation of energy management data
- Integration into TIA Portal and into automation
- Simple configuration

For more information, see page 1/3 or www.siemens.com/energysuite.

## Application

SIMOCODE pro is often used for automated processes where plant downtimes are very expensive (e.g. chemical, oil/gas, water/wastewater, steel or cement industries) and where it is important to prevent plant downtimes through detailed operational, service and diagnostics data or to localize faults very quickly when they occur.

SIMOCODE pro is modular and space-saving and suited especially for operation in motor control centers (MCCs) in the process industry and for power plant technology.

- Protection and control of motors in hazardous areas for types of protection EEx e/d according to ATEX Directive 2014/34/EU
  - With heavy starting (paper, cement, metal and water industries)
  - In high-availability plants (chemical, oil, raw material processing industries, power plants)
- Dry-running protection of centrifugal pumps based on active power monitoring for type of protection Ex b

***Use of SIMOCODE pro 3UF7 with IE3 and IE4 motors***

Note:

When using the SIMOCODE pro 3UF7 in conjunction with highly efficient IE3 and IE4 motors, please observe the information on dimensioning and configuring, see Application Manual.

For more information, see page 1/8.

***Safety technology for SIMOCODE pro***

The safe disconnection of motors in the process industry is becoming increasingly important as the result of new and revised standards and requirements in the safety technology field.

With the DM-F Local and DM-F PROFIsafe fail-safe expansion modules it is easy to integrate functions for fail-safe disconnection into the SIMOCODE pro V motor management system while retaining service-proven concepts. The strict separation of safety functions and operational functions proves particularly advantageous for planning, configuring and construction. Seamless integration into the motor management system leads to greater transparency for diagnostics and during operation of the system.

Suitable components for this purpose are the DM-F Local and DM-F PROFIsafe fail-safe expansion modules, depending on the requirements:

- The DM-F Local fail-safe digital module for when direct assignment between a fail-safe hardware shutdown signal and a motor feeder is required, or
- The DM-F PROFIsafe fail-safe digital module for when a fail-safe controller (F-CPU) creates the signal for disconnection and transmits it in a fail-safe manner through PROFIBUS/PROFIsafe or PROFINET/PROFIsafe to the motor management system

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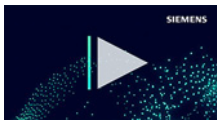
***Dry-running protection of centrifugal pumps with SIMOCODE pro in hazardous areas***




Video: Dry-running protection redefined with SIMOCODE pro

With special versions of the current/voltage measuring modules, SIMOCODE pro enables dry-running protection of centrifugal pumps through active power monitoring and motor switch-off. This applies to centrifugal pumps with progressive flow characteristics, which are also suitable for pumping flammable media and are also installed in hazardous areas. If the active power, and thus the flow rate, falls below a minimum value, the motor – and thus the centrifugal pump – is switched off. When determining the limit values to be monitored, the user is supported by a menu-guided teach-in process in the engineering software.

## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16337/td | Application Manual for controls with IE3 and IE4 motors, see https://support.industry.siemens.com/cs/ww/en/view/94770820 |
| Manual Collection "SIMOCODE pro", see https://support.industry.siemens.com/cs/ww/en/view/109743951 | Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188 |
| Manual for SIMOCODE pro fail-safe digital modules, see https://support.industry.siemens.com/cs/ww/en/view/50564852 | |

## More information

***Configuration instructions***

When using an operator panel with display, please note that the type and number of expansion modules that can be connected are limited for the use of a SIMOCODE pro V PROFIBUS basic unit (with product version lower than E15) or SIMOCODE pro V Modbus RTU (with product version lower than E03), see

- TIA Selection Tool
- SIMOCODE pro Manual Collection

***Protective separation***

All circuits in SIMOCODE pro are safely isolated from each other according to IEC 60947-1. That is, they are designed with doubled clearance and creepage distances. In the event of a fault, therefore, no parasitic voltages can be formed in neighboring circuits. The notes of the test report No. A0258 must be complied with.

***Types of protection EEx e and EEx d***

The overload protection and the thermistor motor protection of the SIMOCODE pro system comply with the requirements for overload protection of explosion-proof motors to the type of protection:

- EEx d "Flameproof enclosure" e.g. according to IEC 60079-1
- EEx e "Increased safety" e.g. according to IEC 60079-7

When using SIMOCODE pro devices with a 24 V DC control voltage, electrical separation must be ensured using a battery or a safety transformer according to IEC 61558-2-6.
EC type-examination certificate: BVS 06 ATEX F 001
Test report: BVS PP 05.2029 EC.

***Type of protection Ex b***

The function for dry-running protection of centrifugal pumps in hazardous areas complies with the requirements of the following type of protection:

- Ex b "Control of ignition source", ignition protection system b1, e.g. according to EN 80079-37

SIMOCODE pro is registered for the dry-running protection of centrifugal pumps by means of active power monitoring according to both ATEX and IEC Ex.

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## Basic units *IE3/IE4* ready

### Selection and ordering data

| Multi-unit packaging for SIMOCODE pro S, see page 16/7. | Version | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **SIMOCODE pro PROFIBUS** | | | | | | |
| <br>3UF7000-1AB00-0 | **SIMOCODE pro C**<br>PROFIBUS DP interface, 12 Mbps, RS 485<br>4 I/3 O freely configurable, input for thermistor connection, monostable relay outputs<br>Rated control supply voltage $U_S$: | | | | | |
| | • 24 V DC | **3UF7000-1AB00-0** | | 1 | 1 unit | 42J |
| | • 110 ... 240 V AC/DC | **3UF7000-1AU00-0** | | 1 | 1 unit | 42J |
| <br>3UF7020-1AU01-0 | **SIMOCODE pro S**<br>PROFIBUS DP interface, 1.5 Mbps, RS 485<br>4 I/2 O freely configurable, input for thermistor connection, monostable relay outputs, can be expanded by a multifunction module<br>Note: The connecting cable to the current measuring module must be at least 15 cm.<br>Rated control supply voltage $U_S$: | | | | | |
| | • 24 V DC | **3UF7020-1AB01-0** | | 1 | 1 unit | 42J |
| | • 110 ... 240 V AC/DC | **3UF7020-1AU01-0** | | 1 | 1 unit | 42J |
| <br>3UF7010-1AB00-0 | **SIMOCODE pro V**<br>PROFIBUS DP interface, 12 Mbps, RS 485<br>4 I/3 O freely configurable, input for thermistor connection, monostable relay outputs, can be expanded by expansion modules<br>Rated control supply voltage $U_S$: | | | | | |
| | • 24 V DC | **3UF7010-1AB00-0** | | 1 | 1 unit | 42J |
| | • 110 ... 240 V AC/DC | **3UF7010-1AU00-0** | | 1 | 1 unit | 42J |
| **SIMOCODE pro PROFINET** | | | | | | |
| <br>3UF7011-1AB00-1 | **SIMOCODE pro V PROFINET GP**<br>ETHERNET/PROFINET IO,<br>OPC UA server and web server, 100 Mbps,<br>PROFINET system redundancy,<br>4 I/3 O freely configurable, input for thermistor connection, monostable relay outputs, can be expanded by expansion module,<br>web server in German/English/Chinese/Russian<br>2 x connection to bus through RJ45<br>Media Redundancy Protocol<br>Rated control supply voltage $U_S$: | | | | | |
| | • 24 V DC | **3UF7011-1AB00-1** | | 1 | 1 unit | 42J |
| | • 110 ... 240 V AC/DC | **3UF7011-1AU00-1** | | 1 | 1 unit | 42J |
| | 1 x connection to bus through RJ45<br>Rated control supply voltage $U_S$: | | | | | |
| | • 24 V DC | **3UF7011-1AB00-2** | | 1 | 1 unit | 42J |
| | • 110 ... 240 V AC/DC | **3UF7011-1AU00-2** | | 1 | 1 unit | 42J |
| <br>3UF7011-1AB00-0 | **SIMOCODE pro V PROFINET**<br>ETHERNET/PROFINET IO,<br>OPC UA server and web server, 100 Mbps,<br>2 x connection to bus through RJ45, PROFINET system redundancy, Media Redundancy Protocol, 4 I/3 O freely configurable, input for thermistor connection, monostable relay outputs, can be expanded by expansion modules,<br>web server in German/English/Chinese/Russian<br>Rated control supply voltage $U_S$: | | | | | |
| | • 24 V DC | **3UF7011-1AB00-0** | | 1 | 1 unit | 42J |
| | • 110 ... 240 V AC/DC | **3UF7011-1AU00-0** | | 1 | 1 unit | 42J |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Current setting | Width | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | A | mm | | | | | |
| **SIMOCODE pro Modbus RTU** | | | | | | | | |
| 3UF7012-1A.00-0 | **SIMOCODE pro V Modbus RTU**<br>Modbus RTU interface, 57.6 Kbps, RS 485,<br>4 I/3 O freely configurable,<br>input for thermistor connection,<br>monostable relay outputs,<br>can be expanded by expansion modules<br>Rated control supply voltage $U_S$: | | | | | | | |
| | • 24 V DC | | | **3UF7012-1AB00-0** | | 1 | 1 unit | 42J |
| | • 110 ... 240 V AC/DC | | | **3UF7012-1AU00-0** | | 1 | 1 unit | 42J |
| **SIMOCODE pro EtherNet/IP** | | | | | | | | |
| 3UF7013-1AB00-0 | **SIMOCODE pro V EtherNet/IP**<br>EtherNet/IP interface, web server, 100 Mbps,<br>2 x connection to bus through RJ45,<br>DLR media redundancy,<br>4 I/3 O freely configurable,<br>input for thermistor connection,<br>monostable relay outputs,<br>can be expanded by expansion modules,<br>web server in German/English/Chinese/Russian<br>Rated control supply voltage $U_S$: | | | | | | | |
| | • 24 V DC | | | **3UF7013-1AB00-0** | | 1 | 1 unit | 42J |
| | • 110 ... 240 V AC/DC | | | **3UF7013-1AU00-0** | | 1 | 1 unit | 42J |
| **SIMOCODE pro current or current/voltage measuring modules** | | | | | | | | |
| 3UF7103-1AA00-0 | **Current measuring modules** | | | | | | | |
| | • Straight-through transformers | 0.3 ... 3 | 45 | **3UF7100-1AA00-0** | | 1 | 1 unit | 42J |
| | | 2.4 ... 25 | 45 | **3UF7101-1AA00-0** | | 1 | 1 unit | 42J |
| | | 10 ... 100 | 55 | **3UF7102-1AA00-0** | | 1 | 1 unit | 42J |
| | | 20 ... 200 | 120 | **3UF7103-1AA00-0** | | 1 | 1 unit | 42J |
| | • Busbar connection[1] | 20 ... 200 | 120 | **3UF7103-1BA00-0** | | 1 | 1 unit | 42J |
| | | 63 ... 630 | 145 | **3UF7104-1BA00-0** | | 1 | 1 unit | 42J |
| 3UF7110-1AA01-0 | **2nd-generation current/voltage measuring modules for SIMOCODE pro V[2]**<br>Voltage measuring up to 690 V,<br>measured values with increased accuracy,<br>power, power factor and frequency monitoring | | | | | | | |
| | • Straight-through transformers | 0.3 ... 4 | 45 | **3UF7110-1AA01-0** | | 1 | 1 unit | 42J |
| | | 3 ... 40 | 45 | **3UF7111-1AA01-0** | | 1 | 1 unit | 42J |
| | | 10 ... 115 | 55 | **3UF7112-1AA01-0** | | 1 | 1 unit | 42J |
| | | 20 ... 200 | 120 | **3UF7113-1AA01-0** | | 1 | 1 unit | 42J |
| | • Busbar connection[1] | 20 ... 200 | 120 | **3UF7113-1BA01-0** | | 1 | 1 unit | 42J |
| | | 63 ... 630 | 145 | **3UF7114-1BA01-0** | | 1 | 1 unit | 42J |
| 3UF7123-1AA01-0 | **Current/voltage measuring modules for dry-running protection of centrifugal pumps in hazardous areas[2)3)4)]** | | | | | | | |
| | • Straight-through transformers | 0.3 ... 4 | 45 | **3UF7120-1AA01-0** | | 1 | 1 unit | 42J |
| | | 3 ... 40 | 45 | **3UF7121-1AA01-0** | | 1 | 1 unit | 42J |
| | | 10 ... 115 | 55 | **3UF7122-1AA01-0** | | 1 | 1 unit | 42J |
| | | 20 ... 200 | 120 | **3UF7123-1AA01-0** | | 1 | 1 unit | 42J |
| | • Busbar connection[1] | 20 ... 200 | 120 | **3UF7123-1BA01-0** | | 1 | 1 unit | 42J |
| | | 63 ... 630 | 145 | **3UF7124-1BA01-0** | | 1 | 1 unit | 42J |

1) One terminal parts kit 3RT1955-4PA00 or 3RT1966-4PA00 (see page 10/20) is included in the scope of supply for connection to a contactor.

2) When installing the basic unit on a current/voltage measuring module, the connecting cable must be at least 15 cm long.

3) The current/voltage measuring modules for dry-running protection require SIMOCODE pro V PROFIBUS basic units as of product version E16, SIMOCODE pro V PROFINET as of product version E13 or SIMOCODE pro V EtherNet/IP as of product version E04.

4) When using an operator panel with display with the current/voltage measuring modules for dry-running protection, an operator panel with display as of product version E03 is required.

Note:

SIMOCODE pro V basic unit in a hardened version via SIPLUS extreme upon request.

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## Basic units *IE3/IE4* ready

| | Version | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **SIMOCODE pro operator panels** | | | | | | |
| <br>3UF7200-1AA01-0 | **Operator panels**<br>Installation in control cabinet door or front plate, for plugging into all SIMOCODE pro basic units, ten LEDs for status indication and freely assignable buttons for controlling the motor, titanium gray | **3UF7200-1AA01-0** | | 1 | 1 unit | 42J |
| <br>3UF7210-1.A01-0 | **Operator panels with display for SIMOCODE pro V**<br>Installation in control cabinet door or front plate, for plugging into SIMOCODE pro V, seven LEDs for status indication and user-assignable buttons for controlling the motor, multilingual display, e.g. for indication of measured values, status information or fault messages, titanium gray | | | | | |
| | • English/German/French/Spanish/Portuguese/ Italian/Polish/Finnish | **3UF7210-1AA01-0** | | 1 | 1 unit | 42J |
| | • English/Chinese/Russian/Korean | **3UF7210-1BA01-0** | | 1 | 1 unit | 42J |

10



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

| Version | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Expansion modules for SIMOCODE pro V** | | | | | |
| With SIMOCODE pro V, it is possible to expand the type and number of inputs and outputs in steps. Each expansion module has two system interfaces on the front. Through the one system interface the expansion module is connected to the system interface of the SIMOCODE pro V using a connecting cable; through the second system interface, further expansion modules or the operator panel can be connected. The power supply for the expansion modules is provided by the connecting cable through the basic unit.<br>Notes:<br>The SIMOCODE pro V PN GP basic unit can be used with the 3UF7300-1A.00-0 monostable digital module, the 3UF7510-1AA00-0 ground-fault module, or the 3UF7700-1AA0-0 temperature module.<br>Please order connecting cable separately, see page 10/18. | | | | | |
| **Digital modules**<br>Up to two digital modules can be used to add additional binary inputs and relay outputs to the basic unit. The input circuits of the digital modules are supplied from an external power supply.<br>Four binary inputs and two relay outputs, up to two digital modules can be connected | | | | | |
| Relay outputs / Input voltage | | | | | |
| Monostable / 24 V DC | **3UF7300-1AB00-0** | | 1 | 1 unit | 42J |
| Monostable / 110 ... 240 V AC/DC | **3UF7300-1AU00-0** | | 1 | 1 unit | 42J |
| Bistable / 24 V DC | **3UF7310-1AB00-0** | | 1 | 1 unit | 42J |
| Bistable / 110 ... 240 V AC/DC | **3UF7310-1AU00-0** | | 1 | 1 unit | 42J |
| **Analog modules**<br>By means of the analog module, the basic unit can be optionally expanded by analog inputs and outputs (0/4 ... 20 mA).<br>Two inputs (passive) for input and one output for output of 0/4 ... 20 mA signals, max. one analog module can be connected per pro V PB/MB RTU basic unit and max. two analog modules per pro V PN/EIP basic unit | **3UF7400-1AA00-0** | | 1 | 1 unit | 42J |
| **Ground-fault modules**<br>Ground-fault monitoring using 3UL23 residual-current transformers and ground-fault modules is used in cases where precise detection of the ground-fault current is required or power systems with high impedance are grounded.<br>With the ground-fault module, it is possible to determine the precise fault current as a measured value, and to define freely selectable warning and trip limits in a wide range from 30 mA ... 40 A.<br>One input for connecting a 3UL23 residual-current transformer, up to one ground-fault module can be connected<br>Note:<br>For corresponding residual-current transformers, see page 10/84. | **3UF7510-1AA00-0** | | 1 | 1 unit | 42J |
| **Temperature modules**<br>Irrespective of the thermistor motor protection of the basic units, up to an additional three analog temperature sensors can be evaluated using a temperature module.<br>Sensor types: Pt100/Pt1000, KTY83/KTY84 or NTC<br>Three inputs for connecting up to three analog temperature sensors, up to one temperature module can be connected per pro V PB/MB RTU basic unit and up to two temperature modules per pro V PN/EIP basic unit | **3UF7700-1AA00-0** | | 1 | 1 unit | 42J |

3UF7300-1AB00-0

3UF7400-1AA00-0

3UF7510-1AA00-0

3UF7700-1AA00-0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Expansion modules

| Multi-unit packaging, see page 16/7. | Version | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Expansion modules for SIMOCODE pro S** | | | | | | |
| | With SIMOCODE pro S, it is possible to expand the type and number of inputs and outputs. The expansion module has two system interfaces on the front. Through the one system interface the expansion module is connected to the system interface of the SIMOCODE pro S using a connecting cable; through the second system interface, the operator panel can be connected. The power supply for the expansion module is provided by the connecting cable through the basic unit.<br>Note:<br>Please order connecting cable separately, see page 10/18. | | | | | |
| <br>3UF7600-1AU01-0 | **Multifunction modules**<br>The multifunction module is the expansion module of the SIMOCODE pro S device series with the following functions:<br>• Digital module function with four digital inputs and two monostable relay outputs<br>• Ground-fault module function with an input for the connection of a 3UL23 residual-current transformer with freely selectable warning and trip limits in a wide zone of 30 mA ... 40 A<br>• Temperature module function with an input for connecting an analog temperature sensor Pt100, Pt1000, KTY83, KTY84, or NTC<br>Max. one multifunction module can be connected per pro S basic unit<br>Input voltage of the digital inputs: | | | | | |
| | • 24 V DC | **3UF7600-1AB01-0** | | 1 | 1 unit | 42J |
| | • 110 ... 240 V AC/DC | **3UF7600-1AU01-0** | | 1 | 1 unit | 42J |





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Illustrations are approximate

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## Selection and ordering data

| Version | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Fail-safe expansion modules for SIMOCODE pro V** | | | | | |
| Thanks to the fail-safe expansion modules, SIMOCODE pro V can be expanded with the function of a safety relay for the fail-safe disconnection of motors. A maximum of one fail-safe digital module can be connected; it can be used instead of a digital module.<br>The fail-safe expansion modules are equipped likewise with two system interfaces at the front for making the connection to other system components. Unlike other expansion modules, power is supplied to the modules through a separate terminal connection.<br>Note:<br>Please order connecting cable separately, see page 10/18. | | | | | |
| **DM-F Local fail-safe digital modules**<br>For fail-safe disconnection using a hardware signal<br>Two relay enabling circuits, joint switching; two relay outputs, common potential disconnected fail-safe; inputs for sensor circuit, start signal, cascading and feedback circuit, safety function adjustable using DIP switches<br>Rated control supply voltage $U_S$: | | | | | |
| • 24 V DC | **3UF7320-1AB00-0** | | 1 | 1 unit | 42J |
| • 110 ... 240 V AC/DC | **3UF7320-1AU00-0** | | 1 | 1 unit | 42J |
| **DM-F PROFIsafe fail-safe digital modules**[1]<br>For fail-safe disconnection using PROFIBUS/PROFIsafe or PROFINET/PROFIsafe<br>Two relay enabling circuits, joint switching; two relay outputs, common potential disconnected fail-safe; one input for feedback circuit; three binary standard inputs<br>Rated control supply voltage $U_S$: | | | | | |
| • 24 V DC | **3UF7330-1AB00-0** | | 1 | 1 unit | 42J |
| • 110 ... 240 V AC/DC | **3UF7330-1AU00-0** | | 1 | 1 unit | 42J |

3UF7320-1AB00-0

3UF7330-1AB00-0

[1] Cannot be used in conjunction with SIMOCODE pro V for Modbus RTU or EtherNet/IP communication.

10

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## Accessories

### Selection and ordering data

| | Version | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Connecting cables (essential accessory)** | | | | | | | |
| 3UF7932-0AA00-0 | In different lengths for connecting basic unit, current measuring module, current/voltage measuring module, operator panel or expansion modules | | | | | | |
| | Version | Length | | | | | |
| | Flat | 0.025 m | **3UF7930-0AA00-0** | | 1 | 1 unit | 42J |
| | | 0.1 m | **3UF7931-0AA00-0** | | 1 | 1 unit | 42J |
| | | 0.15 m | **3UF7934-0AA00-0** | | 1 | 1 unit | 42J |
| | | 0.3 m | **3UF7935-0AA00-0** | | 1 | 1 unit | 42J |
| | | 0.5 m | **3UF7932-0AA00-0** | | 1 | 1 unit | 42J |
| | Round | 0.5 m | **3UF7932-0BA00-0** | | 1 | 1 unit | 42J |
| | | 1.0 m | **3UF7937-0BA00-0** | | 1 | 1 unit | 42J |
| | | 2.5 m | **3UF7933-0BA00-0** | | 1 | 1 unit | 42J |
| **PC cables and adapters** | | | | | | | |
| 3UF7941-0AA00-0 | **USB PC cables**<br>For connecting to the USB interface of a PC/PG, for communication with SIMOCODE pro through the system interface | | **3UF7941-0AA00-0** | | 1 | 1 unit | 42J |
| | **USB/serial adapters**<br>For connecting an RS 232 PC cable to the USB interface of a PC | | **3UF7946-0AA00-0** | | 1 | 1 unit | 42J |
| **Memory modules** | | | | | | | |
| 3UF7901-0AA01-0 | Enable transmission to a new system, e.g. when a device is replaced, without the need for additional aids or detailed knowledge of the device. | | | | | | |
| | **Memory modules for SIMOCODE pro C**<br>For saving the complete parameterization of a SIMOCODE pro C system, titanium gray | | **3UF7900-0AA01-0** | | 1 | 1 unit | 42J |
| | **Memory modules for SIMOCODE pro S and pro V**<br>For saving the complete parameterization of a SIMOCODE pro system, titanium gray | | **3UF7901-0AA01-0** | | 1 | 1 unit | 42J |
| **Interface covers** | | | | | | | |
| 3RA6936-0B | For system interface, titanium gray | | **3RA6936-0B** | | 1 | 5 units | 42F |
| **Addressing plugs** | | | | | | | |
| 3UF7910-0AA00-0 | For assigning the PROFIBUS or Modbus RTU address without using a PC/PG to SIMOCODE pro through the system interface | | **3UF7910-0AA00-0** | | 1 | 1 unit | 42J |





* You can order this quantity or a multiple thereof.
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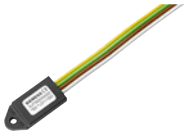
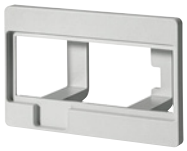
| | Version | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Accessories for motor control centers** | | | | | | | |
|  3UF7902-0AA00-0 | With the draw-out technology often used in motor control centers it is possible to integrate a SIMOCODE pro initialization module in the switchboard on a permanent basis. Feeder-related parameter and address data can then be permanently assigned to this feeder. | | | | | | |
| | **Initialization modules** For automatic parameterization of SIMOCODE pro S and SIMOCODE pro V basic units | | **3UF7902-0AA00-0** | | 1 | 1 unit | 42J |
| | **Y connecting cables** For use in conjunction with the initialization module; connects the basic unit, current measuring module or current/voltage measuring module, and initialization module | | | | | | |
| | System interface length | Open cable end | | | | | |
| | 0.1 m | 1.0 m | **3UF7931-0CA00-0** | | 1 | 1 unit | 42J |
| | 0.5 m | 1.0 m | **3UF7932-0CA00-0** | | 1 | 1 unit | 42J |
| | 1.0 m | 1.0 m | **3UF7937-0CA00-0** | | 1 | 1 unit | 42J |
| **Bus connection terminals** | | | | | | | |
| 3UF7960-0AA00-0 | For shield support and strain relief of the PROFIBUS cable on a SIMOCODE pro S | | **3UF7960-0AA00-0** | | 1 | 1 unit | 42J |
| **Door adapters** | | | | | | | |
| 3UF7920-0AA00-0 | For external connection of the system interface from a control cabinet, for example | | **3UF7920-0AA00-0** | | 1 | 1 unit | 42J |
| **Adapters for operator panel** | | | | | | | |
|  3UF7922-0AA00-0 | The adapter enables the smaller 3UF7200 operator panel from SIMOCODE pro to be used in a front panel cutout in which previously, e.g. after a change of system, a larger 3UF52 operator panel from SIMOCODE-DP had been used, degree of protection IP54 | | **3UF7922-0AA00-0** | | 1 | 1 unit | 42J |
| **Labeling strips** | | | | | | | |
| 3UF7925-0AA02-0 | • For pushbuttons of the 3UF720 operator panel | | **3UF7925-0AA00-0** | | 100 | 400 units | 42J |
| | • For pushbuttons of the 3UF721 operator panel with display | | **3UF7925-0AA01-0** | | 100 | 600 units | 42J |
| | • For LEDs of the 3UF720 operator panel | | **3UF7925-0AA02-0** | | 100 | 1200 units | 42J |
| **Push-in lugs** | | | | | | | |
| 3RV2928-0B | For screw fixing, e.g. on mounting plate, two units required per device | | | | | | |
| | • Can be used for 3UF71.0, 3UF71.1 and 3UF71.2 | | **3RV2928-0B** | | 100 | 10 units | 41E |
| | • Can be used for 3UF700, 3UF701, 3UF73, 3UF74, 3UF75 and 3UF77 | | **3RP1903** | | 1 | 10 units | 41H |
| | • Can be used for 3UF7020, 3UF7600 | | **3ZY1311-0AA00** | | 1 | 10 units | 41L |

10

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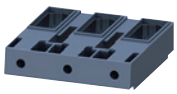
## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminal covers** | | | | | | |
| 3RT1956-4EA1 | **Covers for cable lug and busbar connections** | | | | | |
| | • Length 100 mm, can be used for 3UF71.3-1BA0.-0 | **3RT1956-4EA1** | | 1 | 1 unit | 41B |
| | • Length 120 mm, can be used for 3UF71.4-1BA0.-0 | **3RT1966-4EA1** | | 1 | 1 unit | 41B |
| | **Covers for box terminals** | | | | | |
| | • Length 25 mm, can be used for 3UF71.3-1BA0.-0 | **3RT1956-4EA2** | | 1 | 1 unit | 41B |
| | • Length 30 mm, can be used for 3UF71.4-1BA0.-0 | **3RT1966-4EA2** | | 1 | 1 unit | 41B |
| 3RT1956-4EA2 | **Covers for screw terminals** | | | | | |
| | Between contactor and current measuring module or current/voltage measuring module for direct mounting | | | | | |
| | • Can be used for 3UF71.3-1BA0.-0 | **3RT1956-4EA3** | | 1 | 1 unit | 41B |
| | • Can be used for 3UF71.4-1BA0.-0 | **3RT1966-4EA3** | | 1 | 1 unit | 41B |
| **Terminal parts kit** | | | | | | |
| | Can be used for current and/or current/voltage measuring modules with DIN-rail connection, complete for one contactor | | | | | |
| | • M 8 x 25 | **3RT1955-4PA00** | | 1 | 1 unit | 41B |
| | • M 10 x 30 | **3RT1966-4PA00** | | 1 | 1 unit | 41B |
| **Box terminal blocks** | | | | | | |
|  3RT1956-4G | For round and ribbon cables | | | | | |
| | • Up to 70 $mm^2$, can be used for 3UF71.3-1BA0.-0 | **3RT1955-4G** | | 1 | 1 unit | 41B |
| | • Up to 120 $mm^2$, can be used for 3UF71.3-1BA0.-0 | **3RT1956-4G** | | 1 | 1 unit | 41B |
| | • Up to 240 $mm^2$, can be used for 3UF71.4-1BA0.-0 | **3RT1966-4G** | | 1 | 1 unit | 41B |
| **Bus termination modules** | | | | | | |
| 3UF1900-1KA00 | With separate control supply voltage for bus termination following the last unit on the bus line | | | | | |
| | Supply voltage: | | | | | |
| | • 115/230 V AC | **3UF1900-1KA00** | | 1 | 1 unit | 42J |
| | • 24 V DC | **3UF1900-1KB00** | | 1 | 1 unit | 42J |
| **Software** | | | | | | |
| 3ZS1322... | **SIMOCODE ES (TIA Portal)** | | | | | |
| | Software for configuring, commissioning, operating and diagnosing SIMOCODE pro based on the TIA Portal, see page 14/12. | | | | | |
| 3ZS1632-1XE04-0YA0 | **SIMOCODE pro block library for SIMATIC PCS 7** | | | | | |
| | The PCS 7 block library can be used for simple and easy integration of SIMOCODE pro into the SIMATIC PCS 7 process control system, see page 14/15. | | | | | |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information |
|---|
| Homepage, see www.siemens.com/sirius |
| Industry Mall, see www.siemens.com/product?3UF18 |

The 3UF18 current transformers are protection transformers and are used for actuating overload relays. Protection transformers are designed to ensure proportional current transfer up to a multiple of the primary rated current. The 3UF18 current transformers convert the maximum current of the corresponding operating range into the standard value of 1 A secondary.

## Selection and ordering data

| | Type of mounting | Operating range A | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **For mounting on contactors and stand-alone installation** | | | | | | | |
| 3UF1868 | Screw fixing | 205 … 820 | **3UF1868-3GA00** | | 1 | 1 unit | 42J |

## Accessories

| | For contactor type | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminal covers** | | | | | | |
| | For transformer/contactor combinations and stand-alone installation for 3UF1868-3GA00 transformer<br>Note: One cover required per connection side. | **3TX7696-0A** | | 1 | 1 unit | 41B |

10

* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## LOGO! logic modules

### Overview

LOGO! logic modules

**More information**

Homepage, see www.siemens.com/LOGO
Industry Mall, see www.siemens.com/product?logo
LOGO!, see Catalog ST 70

- The compact, user-friendly, and low-cost solution for simple control tasks
- Compact, user-friendly, can be used universally without accessories
- All in one: The display and operator panel are integrated
- 36 different functions can be linked at a press of a button or with PC software; up to 130 times in total
- LOGO! 8: 38/43 different functions can be linked at a press of a button or with PC software; up to 200/400 times in total
- Functions can be changed simply with the press of a button. No complicated rewiring

***LOGO! basic modules with display***

***The space-saving basic versions***

***LOGO! basic modules without display***

***The cost-optimized basic versions***

***LOGO! expansion modules***

***Digital and analog inputs/outputs for connection to LOGO!***

***LOGO! CMK2000 communications modules***

***For integration of LOGO! 8 in KNX installations***

***LOGO! CSM unmanaged***

***For connecting to Industrial Ethernet in line, tree or star topologies***

***LOGO! CMR (wireless communication)***

***For configuring a low-cost remote signaling system***

***LOGO!Power***

***The flat power supply for distribution boards***

***LOGO!Contact switching modules***

***For switching resistive loads and motors directly***

***LOGO! software***

***The user-friendly software for switching program generation***

### Application

The LOGO! logic module is the user-friendly, low-cost solution for simple control tasks.

LOGO! is universally applicable, e.g.:

- Building installation and wiring (lighting, shutters, awnings, doors, access control, barriers, ventilation systems, etc.)
- Control cabinet installation
- Machine and device construction (pumps, small presses, compressors, hydraulic lifts, conveyors, etc.)
- Special controls for conservatories and greenhouses
- Signal preprocessing for other controllers

LOGO! Modular logic modules can be expanded easily for each application.

Marine approvals:
American Bureau of Shipping, Bureau Veritas, Det Norske Veritas, Germanischer Lloyd, Lloyd's Register of Shipping, Polski Rejestr Statków, etc.

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## Overview

7PV15, SIRIUS 3RP25 and SIRIUS 3RP20 timing relays

**More information**

Homepage, see www.siemens.com/sirius-timing-relays
Industry Mall, see www.siemens.com/product?3RP

Electronic timing relays are used in control, starting, and protective circuits for all switching operations involving time delays.

Their fully developed concept and space-saving, compact design make the SIRIUS 3RP timing relays ideal timer modules for control cabinet, switchgear and control manufacturers in the industry.

With their narrow design, the 7PV15 timing relays are ideal in particular for use in heating, ventilation and air-conditioning systems and in compressors. All 7PV15 timing relays in this enclosure version are suitable for snap-on mounting on TH 35 DIN rails according to IEC 60175. The enclosure complies with DIN 43880.

The SIRIUS 3RA28 function modules enable the assembly of starters and contactor assemblies for direct-on-line and star-delta (wye-delta) starting. They include the key control functions required for the particular feeder, e.g. timing and electrical interlocking. The function modules that function as timing relays are mounted quickly and simply on SIRIUS contactors – without any great wiring effort.

The SIRIUS 3RA28 solid-state time-delay auxiliary switches which can be mounted on contactors are designed for contactor coil voltages in the range from 24 to 240 V AC/DC (wide voltage range). Auxiliary switches for control and alarm signals are used specially for switching the smallest signals for electronics applications. They are used, for example, for allowing a pump or fan to run on, or for the delayed activation of a gate drive.

Simply by being plugged in place, the SIRIUS 3RT19 timing relays enable different functionalities required for the assembly of starters to be realized in the feeder. At the same time the timing relays for mounting on contactors reduce the wiring work required within the feeder and save space in the control cabinet.

***Device series***

SIRIUS timing relays for DIN-rail mounting

- SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm, see page 10/24
- SIRIUS 3RP20 timing relays, 45 mm, see page 10/36
- 7PV15 timing relays, 17.5 mm, see page 10/42

SIRIUS timing relays for mounting on contactors

- SIRIUS 3RA28 solid-state time-delay auxiliary switches for mounting on 3RT2 contactors and 3RH2 contactor relays, see page 3/95
- SIRIUS 3RA28 function modules for mounting on 3RT2 contactors and 3RH2 contactor relays, see page 3/100
- SIRIUS 3RT19 solid-state time-delay auxiliary switches for mounting on 3RT1 contactors, see page 3/96

## Benefits

- The right design for every application
- Clear-cut basic range with five basic units in the case of the 7PV15 timing relays, and up to seven basic units in the case of the 3RP timing relays
- Considerable logistical advantages thanks to versions with wide voltage and wide time setting range
- No tools required for assembly or disassembly on DIN rails
- Cadmium-free relay contacts
- Recyclable, halogen-free enclosure
- Optimum price/performance ratio
- Versions with logical separation
- Low variance: One design for distribution boards and for control cabinets
- Compliance with EMC requirements for buildings
- Environmentally friendly laser inscription instead of printing containing solvents
- Versions as snap-on modules for reducing wiring and saving space in the control cabinet
- Versions with coated printed circuit board
- Versions with screw terminals or alternatively with spring-loaded terminals

## Application

***Timing relays with ON-delay***

- Interference pulse suppression (gating of interference pulses)
- Gradual startup of motors so as not to overload the power supply

***Timing relays with OFF-delay***

- Generation of overtravel functions following removal of voltage
- Gradual, delayed shutdown, e.g. of motors or fans, to allow a plant to be shut down selectively

***Clock-pulse relay***

- Flashing, asymmetrical

***Star-delta (wye-delta) timing relays***

- Switching over motors from wye to delta with a dead interval of 50 ms to prevent phase-to-phase short circuits

***Multifunctional timing relays***

- Maximum flexibility, with a device for every application
- Available with relay and semiconductor output
- Versions for railway applications for more exacting requirements (e.g. temperature range, vibration/shock resistance and EMC)

***Watchdog function***

- Monitoring of cyclic events

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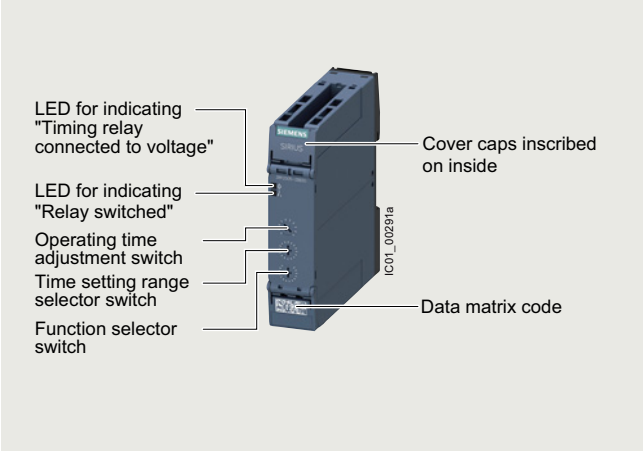
## SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

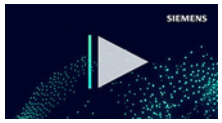
### Overview




SIRIUS 3RP25 timing relay

**More information**

Homepage, see www.siemens.com/sirius-timing-relays
Industry Mall, see www.siemens.com/product?3RP25
TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais
Conversion tool, see www.siemens.com/conversion-tool
Simulator, see https://support.industry.siemens.com/cs/ww/en/view/103556391




Video: What are the benefits of SIRIUS 3RP25 timing relays?

Electronic timing relays for general use in control systems and mechanical engineering with:

- 1 or 2 CO, 1 NO (semiconductor) or 3 NO
- Monofunction or multifunction
- Combination voltage or wide voltage range
- Single or selectable time setting ranges
- Switch position indication and voltage indication by LED
- Versions with coated printed circuit board

### *Article number scheme*

| Product versions | | Article number | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Timing relays** | | **3RP25** | □ | □ | – | □ | □ | □ | □ | **0** | – | □ | □ | □ | □ |
| Product function/ time setting ranges | Multifunction | | **0** | **5** | | | | | | | | | | | 7 time ranges 0.05 s ... 100 h |
| | ON-delay | | **1** | **1** | | | | | | | | | | | 1 time range 0.5 ... 10 s |
| | | | **1** | **2** | | | | | | | | | | | 1 time range 1 ... 3 s |
| | | | **1** | **3** | | | | | | | | | | | 1 time range 5 ... 100 s |
| | | | **2** | **5** | | | | | | | | | | | 7 time ranges 0.05 s ... 100 h |
| | | | **2** | **7** | | | | | | | | | | | 4 time ranges 0.05 s ... 240 s |
| | OFF-delay with control signal | | **3** | **5** | | | | | | | | | | | 7 time ranges 0.05 s ... 100 h |
| | OFF-delay without control signal, non-volatile, passing make contact | | **4** | **0** | | | | | | | | | | | 7 time ranges 0.05 s ... 600 s |
| | Clock-pulse relay, flashing, asymmetrical | | **5** | **5** | | | | | | | | | | | 7 time ranges 0.05 s ... 100 h |
| | Star-delta (wye-delta) function with coasting function (idling) | | **6** | **0** | | | | | | | | | | | Star-delta (wye-delta) 1 ... 20 s, coasting time (idling) 600 s |
| | Star-delta (wye-delta) function | | **7** | **4** | | | | | | | | | | | 1 time range 1 ... 20 s |
| | | | **7** | **6** | | | | | | | | | | | 1 time range 3 ... 60 s |
| Connection type | Screw terminals | | | | | **1** | | | | | | | | | |
| | Spring-loaded terminals (push-in) | | | | | **2** | | | | | | | | | |
| Contacts | 1 CO | | | | | | **A** | | | | | | | | |
| | 2 CO | | | | | | **B** | | | | | | | | |
| | Semiconductors (transistor NPN) | | | | | | **C** | | | | | | | | |
| | Semiconductors (thyristor), two-wire | | | | | | **E** | | | | | | | | |
| | 1 NO + 1 NO (SD) | | | | | | **N** | | | | | | | | |
| | 2 CO force-guided | | | | | | **R** | | | | | | | | |
| | 3 NO | | | | | | **S** | | | | | | | | |
| Control supply voltage | 24 V AC/DC | | | | | | | **B** | **3** | | | | | | |
| | 200 … 240 V/380 … 440 V AC | | | | | | | **M** | **2** | | | | | | |
| | 400 ... 440 V AC | | | | | | | **T** | **2** | | | | | | |
| | 12 ... 240 V AC/DC or 24 ... 240 V AC/DC (3RP2505-.RW30) | | | | | | | **W** | **3** | | | | | | |
| Special versions | With coated printed circuit board | | | | | | | | | | | **0** | **A** | **X** | **0** |
| Example | | **3RP25** | **0** | **5** | **–** | **1** | **A** | **B** | **3** | **0** | | | | | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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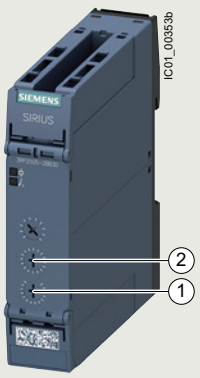
### *3RP2505 multifunctional timing relays*

**Two setting options for implementing the multifunctions (A-M):**




(1) Determination of 13 functions by the setting A to M, with 1 CO, 1 NO, 2 CO that switch in parallel.

(2) Extended function variance by selecting the time range and determining, whether 2 CO switch in parallel or whether 1 CO switches with delay + 1 CO switches immediately (1 CO + 1 CO)

Setting the functions on the device

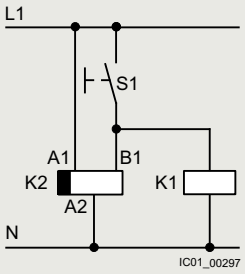
The functions of the 3RP2505 multifunctional timing relays can be set by means of the function selector switch. Whether both CO contacts are switched in parallel or one CO contact with a delay and one instantaneously and the choice of time setting range are set by means of the time setting range selector switch. The exact operating time can be adjusted with the operating time switch.

With a set of foil labels the timing relay can be legibly marked with the functions which can be selected on the timing relay. This is supplied together with the multifunctional timing relay.

The same potential must be applied to terminals A. and B.

Note:

The activation of loads parallel to the start input is permissible when using AC/DC control voltage.




Diagram

Overview of functions

| Identification letter | **13 functions**<br><br>1 CO contact (1 CO), 1 NO contact (1 NO) semiconductor, 2 CO contacts switched in parallel (2 CO) or 2 CO contacts force-guided and switched in parallel with delay (2 CO) | **27 functions**<br><br>13 functions (A - M) 2 CO contacts switched in parallel (2 CO) + 13 functions (A - M) 1 delayed CO contact + 1 instantaneous CO contact (1 CO + 1 CO) and star-delta (wye-delta) function |
|---|---|---|
| **A** | ON-delay | ON-delay and instantaneous contact |
| **B** | OFF-delay with control signal | OFF-delay with control signal and instantaneous contact |
| **C** | ON-delay/OFF-delay with control signal | ON-delay/OFF-delay with control signal and instantaneous contact |
| **D** | Flashing, symmetrical, starting with interval | Flashing, symmetrical, starting with interval and instantaneous contact |
| **E** | Passing make contact, interval relay | Passing make contact, interval relay and instantaneous contact |
| **F** | Retriggerable interval relay with deactivated control signal (passing break contact with control signal) | Retriggerable interval relay with deactivated control signal (passing break contact with control signal) and instantaneous contact |
| **G** | Passing make contact, with control signal, not retriggerable (pulse-forming with control signal) | Passing make contact, with control signal, not retriggerable, (pulse-forming with control signal) and instantaneous contact |
| **H** | Additive ON-delay, instantaneous OFF with control signal | Additive ON-delay, instantaneous OFF with control signal and instantaneous contact |
| **I** | Additive ON-delay with control signal | Additive ON-delay with control signal and instantaneous contact |
| **J** | Flashing, symmetrical, starting with pulse | Flashing, symmetrical, starting with pulse and instantaneous contact |
| **K** | Pulse-delayed (fixed pulse (at 1 s) and settable pulse delay) | Pulse-delayed (fixed pulse (at 1 s) and settable pulse delay) and instantaneous contact |
| **L** | Pulse-delayed with control signal (fixed pulse (at 1 s) and settable pulse delay) | Pulse-delayed with control signal (fixed pulse (at 1 s) and settable pulse delay) and instantaneous contact |
| **M** | Retriggerable interval relay with activated control signal (watchdog) | Retriggerable interval relay with activated control signal and instantaneous contact (watchdog) |
| -- | -- | Star-delta (wye-delta) function |

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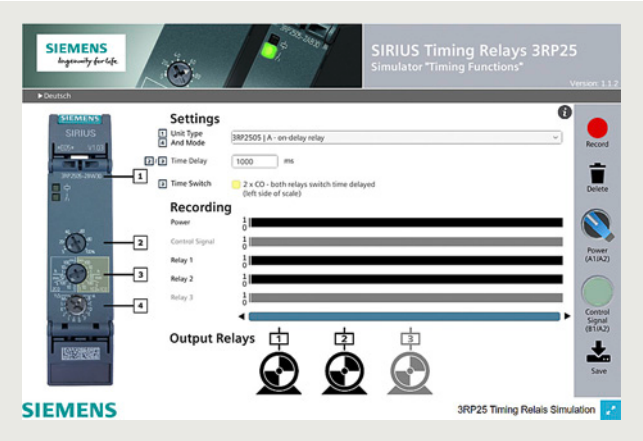
## SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

### *Simulator*




3RP25 simulator

The 3RP25 simulator visualizes different time functions in the 3RP25 timing relay. Any fault scenario can be simulated.

The tool is available free of charge, see https://support.industry.siemens.com/cs/ww/en/view/103556391.

## Benefits

- Easy stock keeping and logistics thanks to low variance of devices
- Reduced space requirement in the control cabinet thanks to variants in width 17.5 mm and 22 mm
- Consistent for all functions thanks to wide voltage range from 12 to 240 V AC/DC
- Up to 27 functions according to IEC 61812 in the multifunctional timing relay with wide voltage range
- Multifunctional timing relay with semiconductor output for high switching frequencies, bounce-free and wear-free switching

### *Standards and approvals*

- IEC 60721-3-3 "Classification of environmental conditions"
- IEC 61812-1/DIN VDE 0435 Part 2021 "Specified time relays for industrial use"
- IEC 61000-6-2, IEC 61000-6-3 and IEC 61000-6-4 "Electromagnetic compatibility"
- IEC 60947-5-1 "Low-voltage switchgear and controlgear – Electromechanical control circuit devices"

## Application

Timing relays are used in control, starting, and protective circuits for all switching operations involving time delays. They guarantee a high level of functionality and a high repeat accuracy of timer settings.

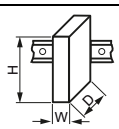
Use in environments exposed to dust, condensation, rapid temperature changes and corrosion is possible thanks to the standard coating of the printed circuit board according to IPC-610. Suitable for applications in rail, agriculture, mining, woodworking, etc.

### *Enclosure version*

All timing relays are suitable for snap-on mounting on TH 35 DIN rails according to IEC 60715 or for screw fixing.

## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16354/td | Internal circuit diagrams, see CAx Download Manager https://support.industry.siemens.com/my/ww/en/CAxOnline#CAxOnline |
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/103532830 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16354/faq |

| Article number | **3RP2505-.A, 3RP2505-.C, 3RP251., 3RP2525-.A, 3RP2527, 3RP253., 3RP255.** | **3RP2505-.B, 3RP2505-.R, 3RP2525-.B, 3RP254., 3RP256., 3RP257.** |
|---|---|---|
| **Dimensions (W x H x D)**  | 17.5 x 100 x 90 | 22.5 x 100 x 90 |

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## SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

| Article number | | 3RP25..-.AB30, 3RP25..-.AW30, 3RP25..-.AW30-0AX0, 3RP25..-.BB30, 3RP25..-.BW30, 3RP25..-.BW30-0AX0, 3RP25..-.NW30, 3RP25..-.RW30, 3RP25..-2RW30-0AX0, 3RP25..-.SW30 | 3RP25..-.BT20, 3RP25..-.NM20 | 3RP25..-.CW30 | 3RP25..-.EW30 |
|---|---|---|---|---|---|
| **General technical specifications** | | | | | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3, rated value** | V | 300 | 500 | 300 | -- |
| **Ambient temperature** | | | | | |
| • During operation | °C | -25 ... +60 | | | |
| • During storage | °C | -40 ... +85 | | | |
| **Switching capacity current with inductive load** | A | 0.01 ... 3 | 0.01 ... 3 | 0.01 ... 1 | 0.01 ... 0.6 |
| **Operational current of the auxiliary contacts** | | | | | |
| • At AC-15 | | | | | |
| - At 24 V | A | 3 | 3 | 1 | -- |
| - At 250 V | A | 3 | 3 | 1 | -- |
| - At 400 V | A | -- | 3 | -- | -- |
| • At DC-12 | | | | | |
| - At 24 V | A | -- | -- | 1 | -- |
| - At 125 V | A | -- | -- | 1 | -- |
| - At 250 V | A | -- | -- | 1 | -- |
| • At DC-13 | | | | | |
| - At 24 V | A | 1 | 1 | -- | -- |
| - At 125 V | A | 0.2 | 0.2 | -- | -- |
| - At 250 V | A | 0.1 | 0.1 | -- | -- |
| **Thermal current** | A | 5 | 5 | 1 | 0.6 |
| **Mechanical endurance (operating cycles)** | | 10 000 000 | | | |
| **Electrical endurance (operating cycles) for AC-15 at 230 V typical** | | 100 000 | | 300 000 | 100 000 |

| Article number | | 3RP25..-.AB30, 3RP2535-.AW30, 3RP2540-.AW30, 3RP25..-.BB30, 3RP2540-.BW30 | 3RP2505-.BT20, 3RP257.-.NM20 | 3RP2505-.AW30, 3RP2505-.AW30-0AX0, 3RP251.-.AW30, 3RP2525-.AW30, 3RP2555-.AW30, 3RP2505-.BW30, 3RP2525-.BW30, 3RP2505-.BW30-0AX0, 3RP2505-.CW30, 3RP2527-.EW30, 3RP257.-.NW30, 3RP2560-.SW30 | 3RP2505-.RW30, 3RP2505-.RW30-0AX0 |
|---|---|---|---|---|---|
| **General technical specifications** | | | | | |
| **Operating range factor of the control supply voltage, rated value** | | | | | |
| • At AC | | | | | |
| - At 50 Hz | | 0.85 ... 1.1 | 0.85 ... 1.1 | 0.8 ... 1.1 | 0.7 ... 1.1 |
| - At 60 Hz | | 0.85 ... 1.1 | 0.85 ... 1.1 | 0.8 ... 1.1 | 0.7 ... 1.1 |
| • At DC | | 0.85 ... 1.1 | -- | 0.8 ... 1.1 | 0.7 ... 1.1 |

| Article number | | 3RP25..-1...0 | 3RP25..-2...0 |
|---|---|---|---|
| **Type of electrical connection for auxiliary and control circuits** | | **Screw terminals** | **Spring-loaded terminals (push-in)** |
| **Design of thread of connection screw** | | M3 | -- |
| **Tightening torque** | Nm | 0.6 … 0.8 | -- |
| **Type of connectable conductor cross-sections** | | | |
| • Solid | | 1 x (0.5 ... 4 mm²), 2 x (0.5 ... 2.5 mm²) | 1 x (0.5 ... 4 mm²) |
| • Finely stranded with end sleeve | | 1 x (0.5 ... 4 mm²), 2 x (0.5 ... 1.5 mm²) | 1 x (0.5 ... 2.5 mm²) |
| • For AWG cables | | | |
| - Solid | | 1 x (20 ... 12), 2 x (20 ... 14) | 1 x (20 ... 12) |
| - Stranded | | 1 x (20 ... 12), 2 x (20 ... 14) | 1 x (20 ... 12) |

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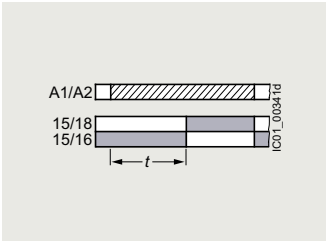
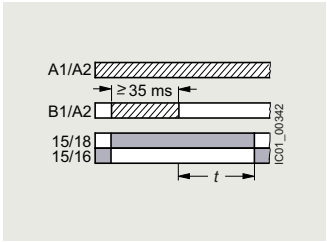
## SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

### *3RP25 function diagrams*

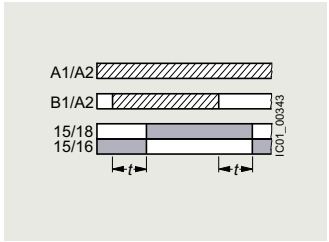
Multifunction 3RP2505-.A, 1 CO, 13 functions and 3RP2505-.C, 1 NO (semiconductor), 13 functions



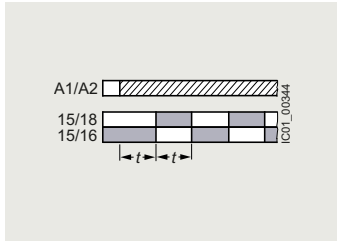

**A**
ON-delay



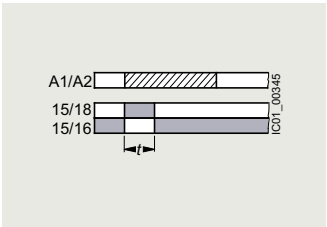

**B**
OFF-delay with control signal



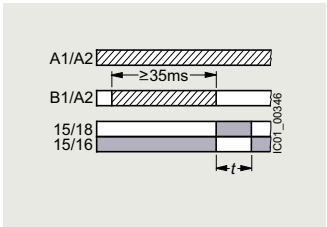

**C**
ON-delay/OFF-delay with control signal



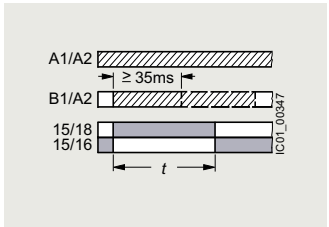

**D**
Flashing, symmetrical, starting with interval



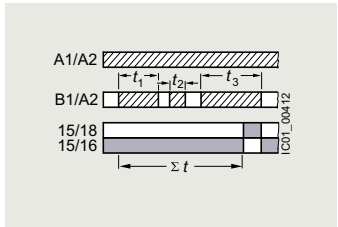

**E**
Passing make contact, interval relay



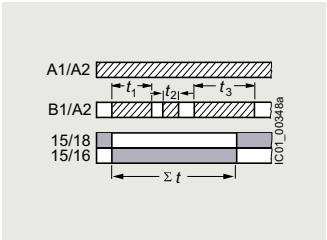

**F**
Retriggerable interval relay with deactivated control signal (passing break contact with control signal)



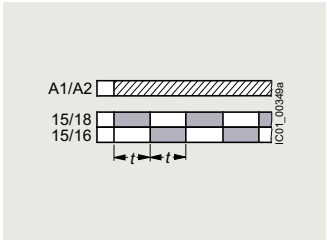

**G**
Passing make contact with control signal, not retriggerable (pulse-forming with control signal)



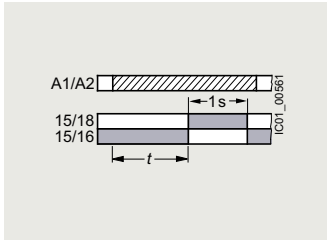

**H**
Additive ON-delay, instantaneous OFF with control signal



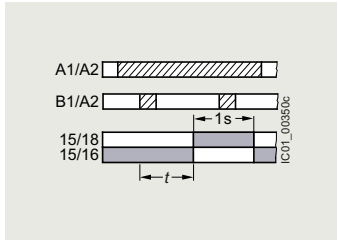

**I**
Additive ON-delay with control signal



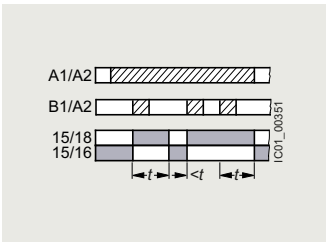

**J**
Flashing, symmetrical, starting with pulse




**K**
Pulse-delayed (fixed pulse (at 1 s) and settable pulse delay)




**L**
Pulse-delayed with control signal (fixed pulse (at 1 s) and settable pulse delay)




**M**
Retriggerable interval relay with activated control signal (watchdog)

Legend

**A ... M** Identification letters
Timing relay energized
Contact closed
Contact open

10

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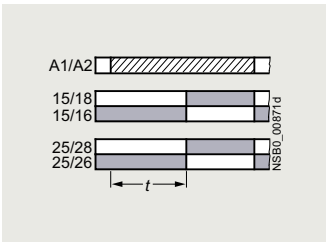
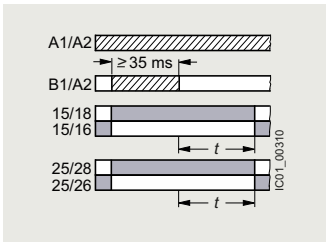
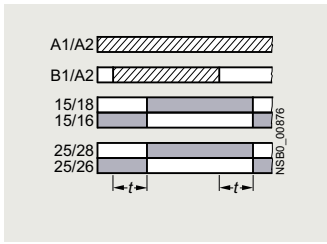
Multifunction 3RP2505-.R, 13 functions, 2 CO force-guided and switched in parallel with delay



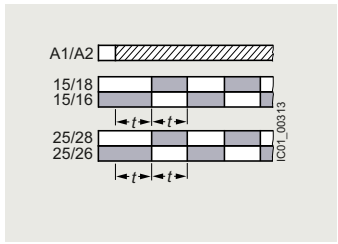

**A**
ON-delay



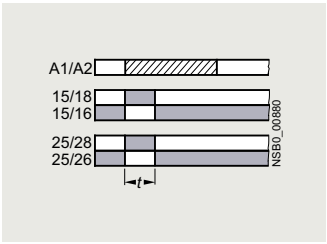

**B**
OFF-delay with control signal



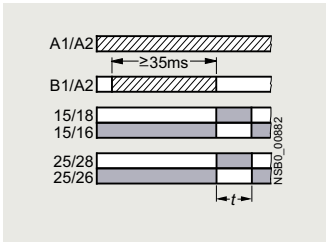

**C**
ON-delay/OFF-delay with control signal



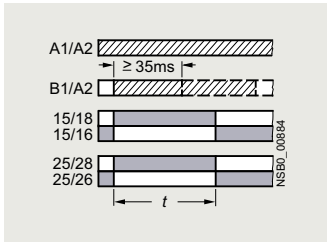

**D**
Flashing, symmetrical, starting with interval



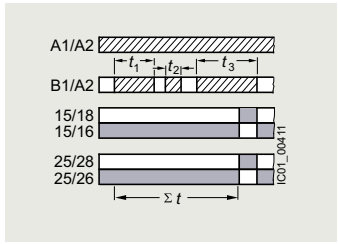

**E**
Passing make contact, interval relay



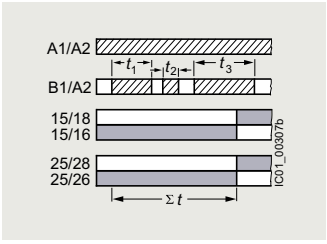

**F**
Retriggerable interval relay with deactivated control signal (passing break contact with control signal)



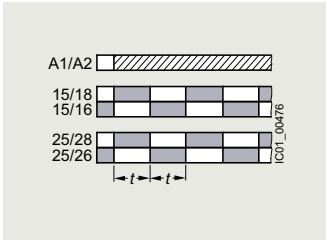

**G**
Passing make contact with control signal, not retriggerable (pulse-forming with control signal)



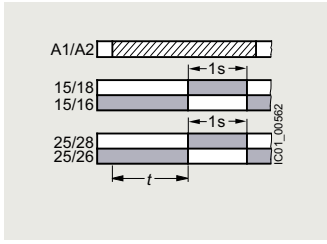

**H**
Additive ON-delay, instantaneous OFF with control signal



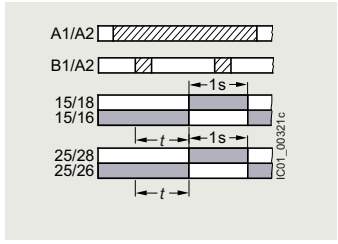

**I**
Additive ON-delay with control signal



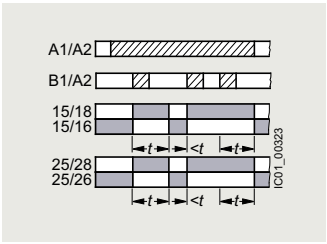

**J**
Flashing, symmetrical, starting with pulse




**K**
Pulse-delayed (fixed pulse at 1 s and settable pulse delay)




**L**
Pulse-delayed with control signal (fixed pulse at 1 s and settable pulse delay)




**M**
Retriggerable interval relay with activated control signal (watchdog)

Legend

**A ... M** Identification letters
Timing relay energized
Contact closed
Contact open

10

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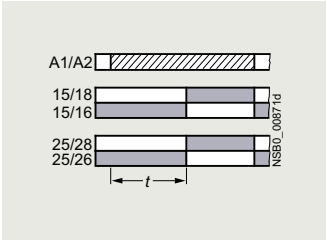
## SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

Multifunction 3RP2505-.B, 27 functions, 2 CO

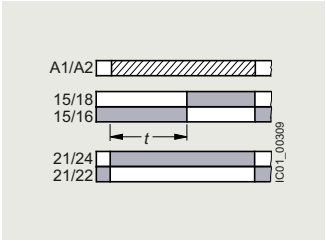
**A**

2 CO switched in parallel




ON-delay

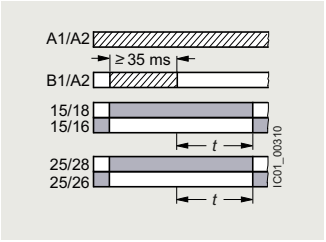
1 delayed CO contact + 1 instantaneous CO contact




ON-delay and instantaneous contact

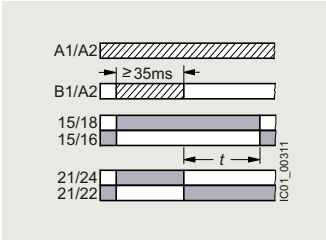
**B**

2 CO switched in parallel




OFF-delay with control signal

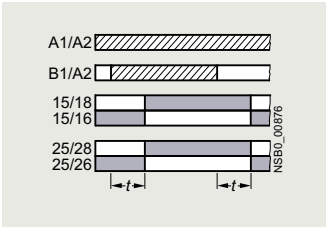
1 delayed CO contact + 1 instantaneous CO contact




OFF-delay with control signal and instantaneous contact

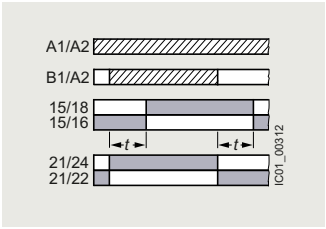
**C**

2 CO switched in parallel




ON-delay/OFF-delay with control signal

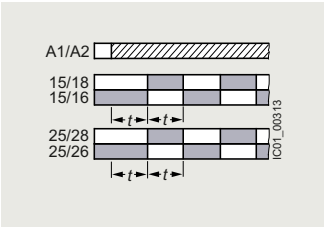
1 delayed CO contact + 1 instantaneous CO contact




ON-delay/OFF-delay with control signal and instantaneous contact

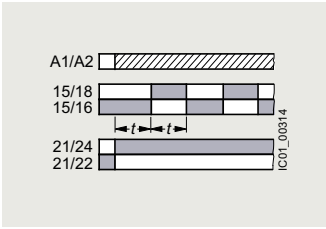
**D**

2 CO switched in parallel




Flashing, symmetrical, starting with interval

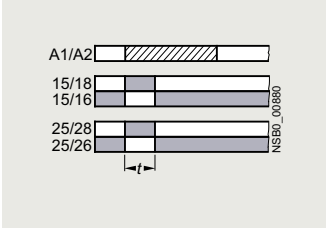
1 delayed CO contact + 1 instantaneous CO contact




Flashing, symmetrical, starting with interval and instantaneous contact

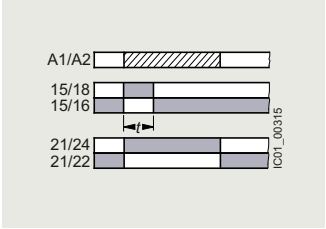
**E**

2 CO switched in parallel




Passing make contact, interval relay

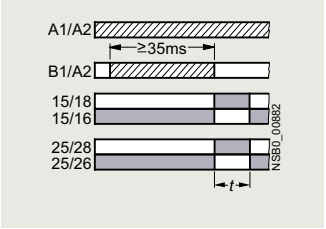
1 delayed CO contact + 1 instantaneous CO contact




Passing make contact, interval relay and instantaneous contact

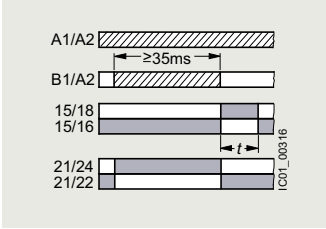
**F**

2 CO switched in parallel




Retriggerable interval relay with deactivated control signal (passing break contact with control signal)

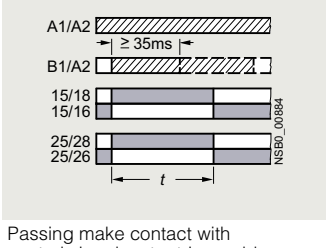
1 delayed CO contact + 1 instantaneous CO contact




Retriggerable interval relay with deactivated control signal (passing break contact with control signal) and instantaneous contact

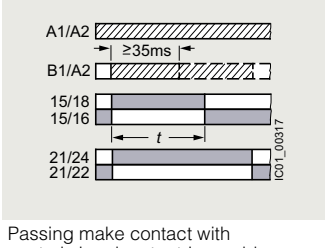
**G**

2 CO switched in parallel




Passing make contact with control signal, not retriggerable (pulse-forming with control signal)

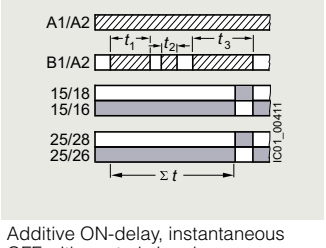
1 delayed CO contact + 1 instantaneous CO contact




Passing make contact with control signal, not retriggerable (pulse-forming with control signal) and instantaneous contact

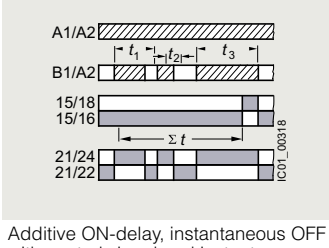
**H**

2 CO switched in parallel




Additive ON-delay, instantaneous OFF with control signal

1 delayed CO contact + 1 instantaneous CO contact




Additive ON-delay, instantaneous OFF with control signal and instantaneous contact

Legend

**A ... H** Identification letters
Timing relay energized
Contact closed
Contact open

10

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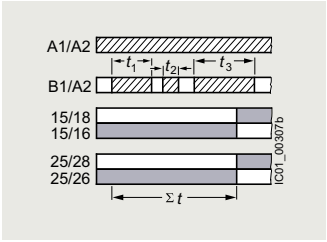
Multifunction 3RP2505-.B, 27 functions, 2 CO (continued)

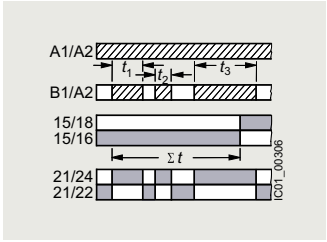
**I**

2 CO switched in parallel




Additive ON-delay with control signal

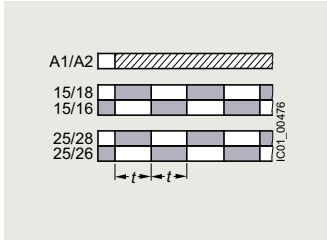
1 delayed CO contact +
1 instantaneous CO contact




Additive ON-delay with control signal and instantaneous contact

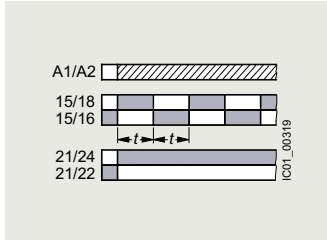
**J**

2 CO switched in parallel




Flashing, symmetrical, starting with pulse

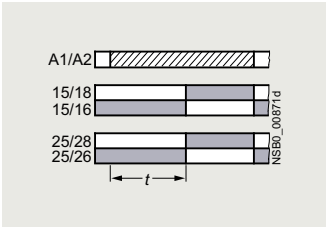
1 delayed CO contact +
1 instantaneous CO contact




Flashing, symmetrical, starting with pulse and instantaneous contact

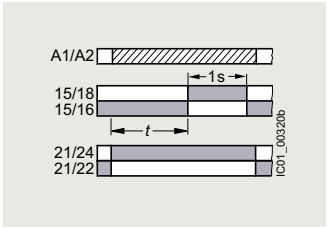
**K**

2 CO switched in parallel




Pulse-delayed (fixed pulse at 1 s and settable pulse delay)

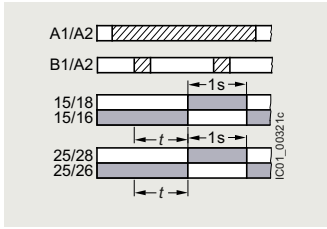
1 delayed CO contact +
1 instantaneous CO contact




Pulse-delayed (fixed pulse at 1 s and settable pulse delay) and instantaneous contact

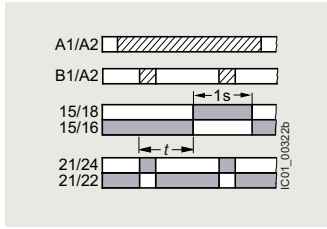
**L**

2 CO switched in parallel




Pulse-delayed with control signal (fixed pulse at 1 s and settable pulse delay)

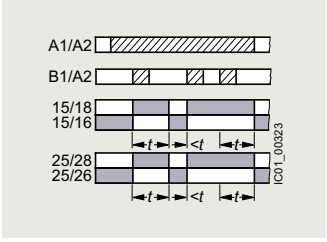
1 delayed CO contact +
1 instantaneous CO contact




Pulse-delayed with control signal (fixed pulse at 1 s and settable pulse delay) and instantaneous contact

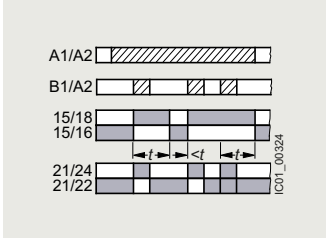
**M**

2 CO switched in parallel




Retriggerable interval relay with activated control signal (watchdog)

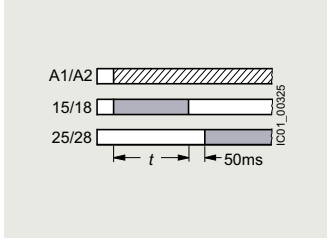
1 delayed CO contact +
1 instantaneous CO contact




Retriggerable interval relay with activated control signal and instantaneous contact (watchdog)

**Y**Δ

2 CO contacts switched in parallel or
1 delayed CO contact +
1 instantaneous CO contact




Star-delta (wye-delta) function

Legend

**I ... M** Identification letters

Timing relay energized

Contact closed

Contact open

10

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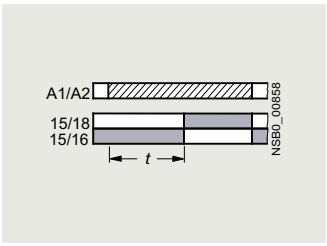
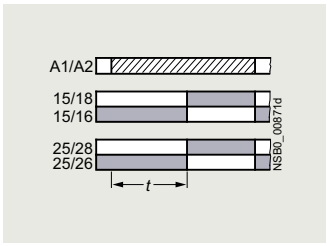
## SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

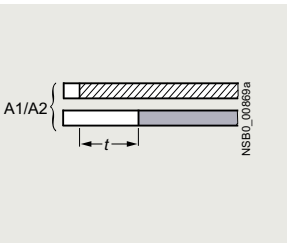
Monofunctions 3RP251. to 3RP257.[1)]



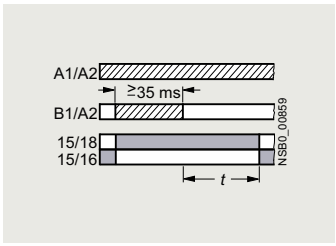

3RP251.-.AW30, 1 CO, ON-delay



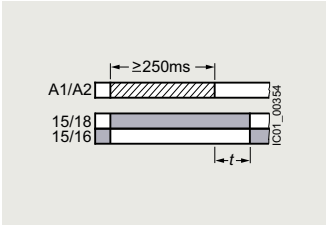

3RP2525-..W30, 2 CO, ON-delay



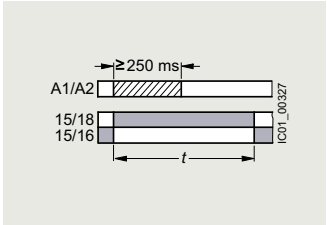

3RP2527-.EW30, 1 NO (semiconductor), ON-delay



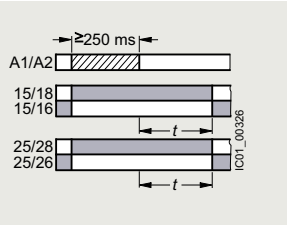

3RP2535-.AW30, 1 CO, OFF-delay with control signal



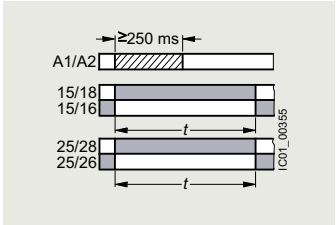

3RP2540-.A.30, 1 CO, OFF-delay (N)[1)]



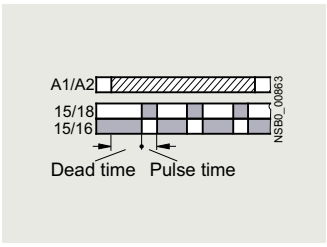

3RP2540-.A.30, 1 CO, positive passing make contact (O)[1)]



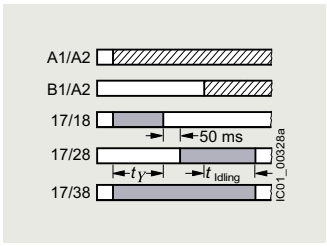

3RP2540-.B.30, 2 CO, OFF-delay (N)[1)]



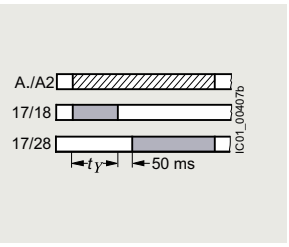

3RP2540-.B.30, 2 CO, positive passing make contact (O)[1)]



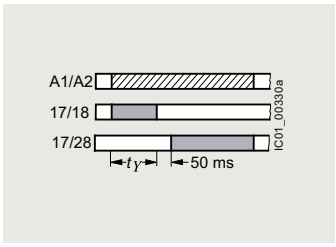

3RP2555-.AW30, 1 CO, flashing, asymmetrical, starting with interval (clock-pulse relay)




3RP2560-.SW30, 3 NO, star-delta (wye-delta) function with overtravel function (idling)




3RP257.-.NM20, 2 NO, star-delta (wye-delta) function




3RP257.-.NW30, 2 NO, star-delta (wye-delta) function

Legend

- Timing relay energized
- Contact closed
- Contact open

1) 3RP2540 has a double function:
Function N = OFF-delay
Function O = Positive passing make contact.

10

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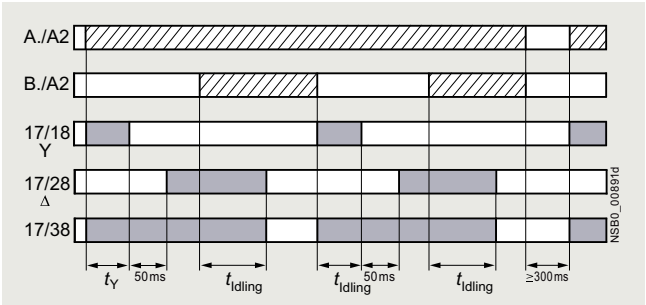
***Possibilities of operation of the 3RP2560-.SW30 timing relay***

Operation 1: Start contact B./A2 is open when control supply voltage A./A2 is applied

The control supply voltage is applied to A./A2 and there is no control signal on B./A2. This starts the Y/Δ timing. The idling time (coasting time) is started by applying a control signal to B./A2. When the set time $t_{Idling}$ (30 to 600 s) has elapsed, the output relays (17/38 and 17/28) are reset. If the control signal on B./A2 is switched off (minimum OFF period 270 ms), a new timing is started.

Note:

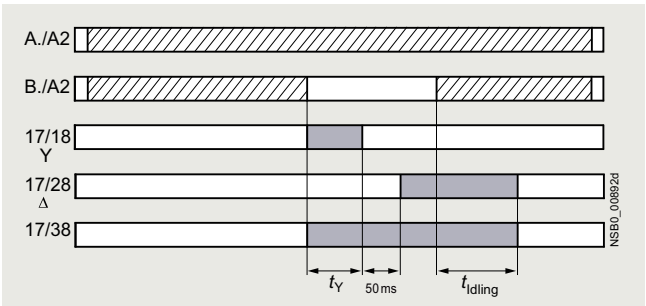
Observe response time (dead time) of 400 ms on energizing control supply voltage until contacts 17/18 and 17/38 close.




Operation 1

Operation 2: Start contact B./A2 is closed when control supply voltage A./A2 is applied.

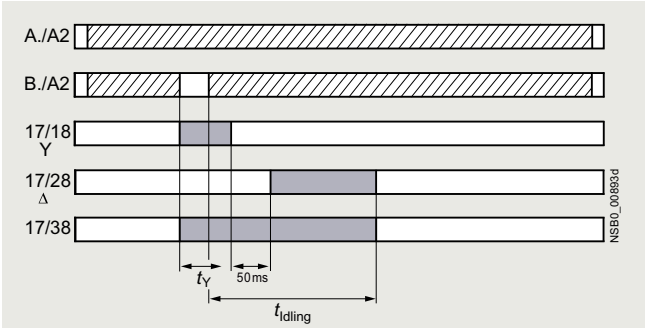
If the control signal B./A2 is already present when the control supply voltage A./A2 is applied, **no** timing is started. The timing is only started when the control signal B./A2 is switched off.




Operation 2

Operation 3: Start contact B./A2 closes while star time is running

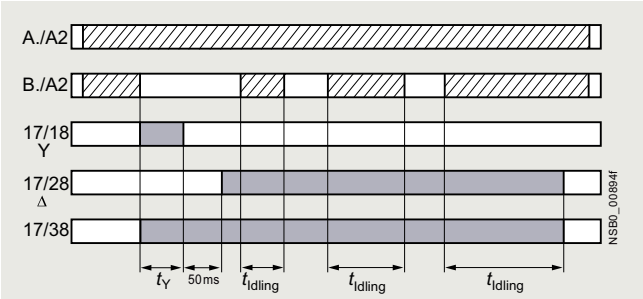
If the control signal B./A2 is applied again during the star time, the idling time starts and the timing is terminated normally.




Operation 3

Operation 4: Start contact B./A2 opens while delta time is running and is applied again

If the control signal on B./A2 is applied and switched off again during the delta time, although the idling time has not yet elapsed, the idling time (coasting time) is reset to zero. If the control signal is re-applied to B./A2, the idling time is restarted.




Operation 4

Legend

- Timing relay energized
- Contact closed
- Contact open

$t_Y$ = Star time 1 to 20 s

$t_{Idling}$ = Idling time (coasting time) 30 to 600 s

Note:

The following applies to all operations: The pressure switch controls the timing via B./A2.

Application example based on standard operation (operation 1): For example, use of 3RP2560 for compressor control

Frequent starting of compressors strains the network, the machine, and the increased costs for the operator. The new timing relay prevents frequent starting at times when there is high demand for compressed air. A special control circuit prevents the compressor from being switched off immediately when the required air pressure in the tank has been reached. Instead, the valve in the intake tube is closed and the compressor runs in "Idling" mode, i.e. in no-load operation for a specific time which can be set from 30 to 600 s.

If the pressure falls within this time, the motor does not have to be restarted again, but can return to rated load operation from no-load operation.

If the pressure does not fall within this idling time, the motor is switched off.

The pressure switch controls the timing via B./A2.

The control supply voltage is applied to A./A2 and the start contact B./A2 is open, i.e. there is no control signal on B./A2 when the control supply voltage is applied. The pressure switch signals "too little pressure in system" and starts the timing by way of terminal B./A2. The compressor is started, enters Y/Δ operation, and fills the pressure tank.

When the pressure switch signals "sufficient pressure", the control signal B./A2 is applied, the idling time (coasting time) is started, and the compressor enters no-load operation for the set period of time from 30 to 600 s. The compressor is then switched off. The compressor is only restarted if the pressure switch responds again (low pressure).

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## SIRIUS 3RP25 timing relays, 17.5 mm and 22.5 mm

### Selection and ordering data

**Multi-unit packaging, see page 16/7.**

3RP2505-2AB30

3RP2505-2BB30

3RP2525-2AW30

3RP2540-2AW30

3RP2555-2AW30

3RP2576-2NW30

| Number of NO contacts: Instantaneous switching | Number of NO contacts: Delayed switching | Number of CO contacts: Instantaneous switching | Number of CO contacts: Delayed switching | Semiconductor output | Adjustable time | Control supply voltage: at 50/60 Hz AC | Control supply voltage: at DC | Standard coating IPC-610 | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | V | V | | | | | | |
| **13 functions** | | | | | | | | | | | | | |
| 0 | 0 | 0 | 1 | No | 0.05 s ... 100 h | 24 | 24 | No | **3RP2505-□AB30** | | 1 | 1 unit | 41H |
| | | | | | | 12 ... 240 | 12 ... 240 | No | **3RP2505-□AW30** | | 1 | 1 unit | 41H |
| | | | | | | | | Yes | **3RP2505-2AW30-0AX0** | | 1 | 1 unit | 41H |
| 0 | 1 | 0 | 0 | Yes | 0.05 s ... 100 h | 12 ... 240 | 12 ... 240 | No | **3RP2505-□CW30** | | 1 | 1 unit | 41H |
| **13 functions, suitable for railway applications** | | | | | | | | | | | | | |
| 0 | 0 | 0 | 2[1] | No | 0.05 s ... 100 h | 24 ... 240 | 24 ... 240 | No | **3RP2505-□RW30** | | 1 | 1 unit | 41H |
| | | | | | | | | Yes | **3RP2505-2RW30-0AX0** | | 1 | 1 unit | 41H |
| **27 functions** | | | | | | | | | | | | | |
| 0 | 0 | 0 | 2[2] | No | 0.05 s ... 100 h | 24 | 24 | No | **3RP2505-□BB30** | | 1 | 1 unit | 41H |
| | | | | | | 400 ... 440 | -- | No | **3RP2505-□BT20** | | 1 | 1 unit | 41H |
| | | | | | | 12 ... 240 | 12 ... 240 | No | **3RP2505-□BW30** | | 1 | 1 unit | 41H |
| | | | | | | | | Yes | **3RP2505-2BW30-0AX0** | | 1 | 1 unit | 41H |
| **ON-delay** | | | | | | | | | | | | | |
| 0 | 0 | 0 | 1 | No | 0.5 ... 10 s | 12 ... 240 | 12 ... 240 | No | **3RP2511-□AW30** | | 1 | 1 unit | 41H |
| | | | | | 1 ... 30 s | 12 ... 240 | 12 ... 240 | No | **3RP2512-□AW30** | | 1 | 1 unit | 41H |
| | | | | | 5 ... 100 s | 12 ... 240 | 12 ... 240 | No | **3RP2513-□AW30** | | 1 | 1 unit | 41H |
| | | | | | 0.05 s ... 100 h | 12 ... 240 | 12 ... 240 | No | **3RP2525-□AW30** | | 1 | 1 unit | 41H |
| 0 | 0 | 0 | 2 | No | 0.05 s ... 100 h | 24 | 24 | No | **3RP2525-□BB30** | | 1 | 1 unit | 41H |
| | | | | | | 12 ... 240 | 12 ... 240 | No | **3RP2525-□BW30** | | 1 | 1 unit | 41H |
| 0 | 1 | 0 | 0 | Yes | 0.05 s ... 240 s | 12 ... 240 | 12 ... 240 | No | **3RP2527-□EW30** | | 1 | 1 unit | 41H |
| **OFF-delay with control signal** | | | | | | | | | | | | | |
| 0 | 0 | 0 | 1 | No | 0.05 s ... 100 h | 12 ... 240 | 12 ... 240 | No | **3RP2535-□AW30** | | 1 | 1 unit | 41H |
| **OFF-delay without control signal, non-volatile, passing make contact** | | | | | | | | | | | | | |
| 0 | 0 | 0 | 1[4] | No | 0.05 s ... 600 s | 24 | 24 | No | **3RP2540-□AB30** | | 1 | 1 unit | 41H |
| | | | | | | 12 ... 240 | 12 ... 240 | No | **3RP2540-□AW30** | | 1 | 1 unit | 41H |
| 0 | 0 | 0 | 2[4] | No | 0.05 s ... 600 s | 24 | 24 | No | **3RP2540-□BB30** | | 1 | 1 unit | 41H |
| | | | | | | 12 ... 240 | 12 ... 240 | No | **3RP2540-□BW30** | | 1 | 1 unit | 41H |
| **Clock-pulse relay, flashing, asymmetrical** | | | | | | | | | | | | | |
| 0 | 0 | 0 | 1 | No | 0.05 s ... 100 h | 12 ... 240 | 12 ... 240 | No | **3RP2555-□AW30** | | 1 | 1 unit | 41H |
| **Star-delta (wye-delta) function with coasting function (idling)** | | | | | | | | | | | | | |
| 1 | 2 | 0 | 0 | No | 1 ... 20 s | 12 ... 240 | 12 ... 240 | No | **3RP2560-□SW30** | | 1 | 1 unit | 41H |
| **Star-delta (wye-delta) function** | | | | | | | | | | | | | |
| 1 | 1 | 0 | 0 | No | 1 ... 20 s | 380 ... 440[3] | -- | No | **3RP2574-□NM20** | | 1 | 1 unit | 41H |
| | | | | | | 12 ... 240 | 12 ... 240 | No | **3RP2574-□NW30** | | 1 | 1 unit | 41H |
| 1 | 1 | 0 | 0 | No | 3 ... 60 s | 380 ... 440[3] | -- | No | **3RP2576-□NM20** | | 1 | 1 unit | 41H |
| | | | | | | 12 ... 240 | 12 ... 240 | No | **3RP2576-□NW30** | | 1 | 1 unit | 41H |

**Type of electrical connection**

- Screw terminals
- Spring-loaded terminals (push-in)

1
2

[1] Force-guided contacts.

[2] Optionally 1 CO delayed + 1 CO instantaneous.

[3] With 3RP2574-.NM20 and 3RP2576-.NM20, connection of 200 to 240 V AC, 50/60 Hz control voltage is also possible.

[4] Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control supply voltage once results in contact changeover to the correct setting.

Notes:

Accessories, see page 10/35.

In the case of 3RP2505, the functions can be adjusted by means of function selector switches on the device. With a set of foil labels the timing relay can be legibly marked with the functions which can be selected on the timing relay. This is included in the scope of supply. The same potential must be applied to terminals A. and B.
For functions, see the overview of functions on page 10/25.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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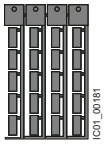
## Accessories

**More information**

You can find information on configuring and dimensioning the accessories in the Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/103532830

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminals for SIRIUS devices in the industrial DIN-rail enclosure** | | | | | | |
| 3ZY1122-1BA00 | **Removable terminals** | **Screw terminals** | | | | |
| | • 2-pole, up to 1 x 4 mm² or 2 x 2.5 mm² | **3ZY1122-1BA00** | | 1 | 6 units | 41L |
| 3ZY1122-2BA00 | | **Spring-loaded terminals (push-in)** | | | | |
| | • 2-pole, up to 1 x 4 mm² or 2 x 1.5 mm² (in shared end sleeve) | **3ZY1122-2BA00** | | 1 | 6 units | 41L |
| **Accessories for enclosures** | | | | | | |
| 3ZY1321-2AA00 | **Sealing covers** | | | | | |
| | • 17.5 mm | **3ZY1321-1AA00** | | 1 | 5 units | 41L |
| | • 22.5 mm | **3ZY1321-2AA00** | | 1 | 5 units | 41L |
| 3ZY1311-0AA00 | **Push-in lugs** For wall mounting | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| 3ZY1440-1AA00 | **Coding pins** For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; enable the mechanical coding of terminals | **3ZY1440-1AA00** | | 1 | 12 units | 41L |
| 3ZY1450-1AB00 | **Hinged cover** Replacement cover, without terminal labeling, titanium gray | | | | | |
| | • 17.5 mm wide | **3ZY1450-1AA00** | | 1 | 5 units | 41L |
| | • 22.5 mm wide | **3ZY1450-1AB00** | | 1 | 5 units | 41L |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1] For SIRIUS devices | | | | | |
| | • 10 mm x 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| | • 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdrivers** For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals (push-in)** | | | | |
| | Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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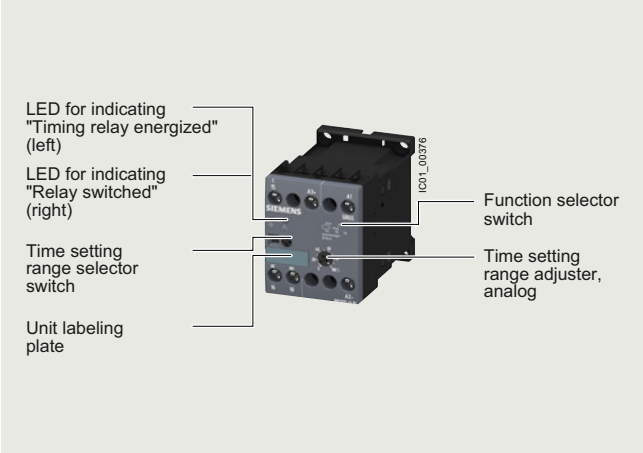
## SIRIUS 3RP20 timing relays, 45 mm

### Overview




SIRIUS 3RP20 timing relay

SIRIUS 3RP20 electronic timing relays for use in control systems and mechanical engineering with:

- 1 or 2 CO contacts
- Multifunction or monofunction
- Wide voltage range or combination voltage
- Single or selectable time setting ranges
- Switch position indication and voltage indication by LED

#### *Standards*

The timing relays comply with:

- IEC 60721-3-3 "Classification of environmental conditions"
- IEC 61812-1 "Specified time relays for industrial use"
- IEC 61000-6-2 and IEC 61000-6-4 "Electromagnetic compatibility"
- IEC 60947-5-1 "Low-voltage switchgear and controlgear – Electromechanical control circuit devices"
- IEC 60947-1, Annex N "Protective separation"

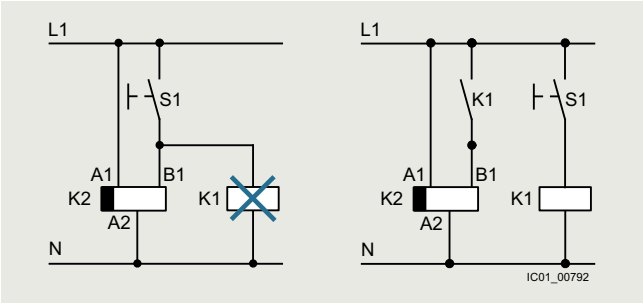
#### *Multifunction*

The functions of the 3RP2005 multifunctional timing relays can be set by means of the function selector switch. Insert labels can be used to adjust different functions of the timing relay clearly and unmistakably. The corresponding labels can be ordered as an accessory. The same potential must be applied to terminals A. and B.

For functions, see 3RP2901 label set, page 10/41.

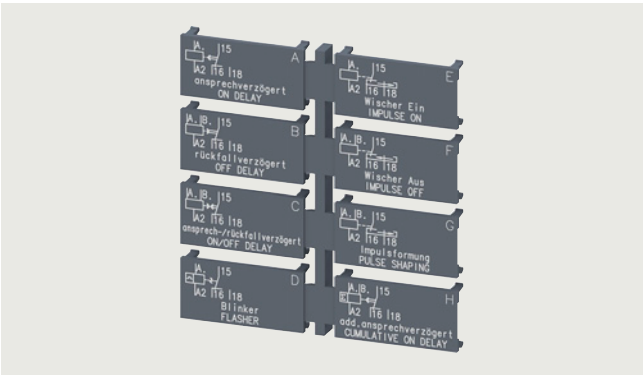
Note:

The activation of loads parallel to the start input is not permissible when using AC control voltage.




Diagrams

#### *Accessories*



Label set for marking the multifunctional relay

#### *Article number scheme*

| Product versions | | Article number | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **SIRIUS timing relays, 45 mm enclosure** | | **3RP20** | □ | □ | – | □ | □ | □ | **3** | **0** | |
| Product function/ time setting ranges | Multifunction | | **0** | **5** | | | | | | | 15 time ranges 0.05 s ... 100 h |
| | ON-delay | | **2** | **5** | | | | | | | 15 time ranges 0.05 s ... 100 h |
| Connection type | Screw terminals | | | | | **1** | | | | | |
| | Spring-loaded terminals | | | | | **2** | | | | | |
| Contacts | 1 CO | | | | | | **A** | | | | |
| | 2 CO | | | | | | **B** | | | | |
| Control supply voltage | 24 V AC/DC/100 ... 127 V AC | | | | | | | **Q** | | | Combination voltage |
| | 24 V AC/DC/200 ... 240 V AC | | | | | | | **P** | | | Combination voltage |
| | 24 ... 240 V AC/DC | | | | | | | **W** | | | Wide voltage range |
| Example | | **3RP20** | **0** | **5** | **–** | **1** | **A** | **P** | **3** | **0** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Benefits

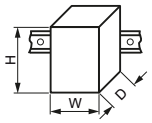
- Suitable for 3RT miniature contactors
- Uniform design
- Ideal for small distance between DIN rails and/or for low mounting depth, e.g. in control boxes
- Labels are used on the multifunctional timing relay to document the function that has been set

## Application

Timing relays are used in control, starting, and protective circuits for all switching operations involving time delays. They guarantee a high level of functionality and a high repeat accuracy of timer settings.

## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16356/td | Internal circuit diagrams, see CAx Download Manager https://support.industry.siemens.com/my/ww/en/CAxOnline#CAxOnline |
| Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/view/11647144 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16356/faq |

| **Type** | | **3RP2005, 3RP2025** |
|---|---|---|
| Dimensions (W x H x D)   | mm | 45 x 57 x 73 |
| **Rated insulation voltage** Pollution degree 3 Overvoltage category III | V AC | 300 |
| **Permissible ambient temperature** | | |
| • During operation | °C | -25 ... +60 |
| • During storage | °C | -40 ... +85 |
| **Operating range of excitation**[1] | | 0.85 ... 1.1 x $U_s$ at AC; 0.8 ... 1.25 x $U_s$ at DC; 0.95 ... 1.05 times the rated frequency |
| **Mechanical endurance** | Operating cycles | 10 x $10^6$ |
| **Electrical endurance** at $I_e$ | Operating cycles | 1 x $10^5$ |
| **Connection type** | | **Screw terminals** |
| • Terminal screw | | M3 (for standard screwdriver, size 2 and Pozidriv 2) |
| • Solid | $mm^2$ | 2 x (0.5 ... 1.5)[2], 2 x (0.75 ... 2.5)[2] |
| • Finely stranded with end sleeve | $mm^2$ | 2 x (0.5 ... 1.5)[2], 2 x (0.75 ... 2.5)[2] |
| • Stranded | AWG | 2 x (0.5 ... 1.5)[2], 2 x (0.75 ... 2.5)[2] |
| • AWG cables | AWG | 2 x (18 ... 14) |
| • Tightening torque | Nm | 0.8 ... 1.2 |
| **Connection type** | | **Spring-loaded terminals** |
| • Solid | $mm^2$ | 2 x (0.25 ... 2.5) |
| • Finely stranded with end sleeve | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded without end sleeve | $mm^2$ | 2 x (0.25 ... 2.5) |
| • AWG cables, solid or stranded | AWG | 2 x (24 ... 14) |
| • Max. external diameter of the conductor insulation | mm | 3.6 |

1) If nothing else is stated.

2) If two different conductor cross-sections are connected to one clamping point, both cross-sections must lie in one of the ranges specified.

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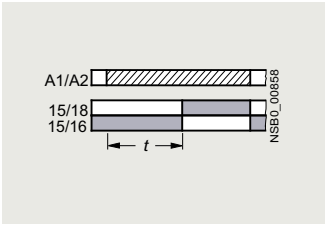
## SIRIUS 3RP20 timing relays, 45 mm

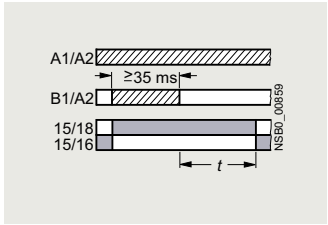
### *3RP20 function diagrams and 3RP2901 label set*

1 CO contact



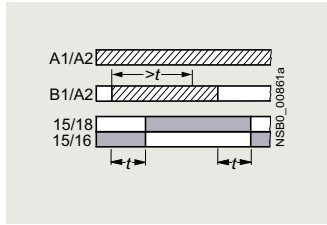

**A**

3RP2005-.A, 3RP2025
ON-delay



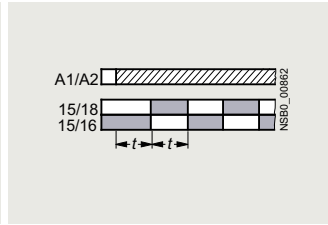

**B**[1)]

3RP2005-.A
OFF-delay with control signal



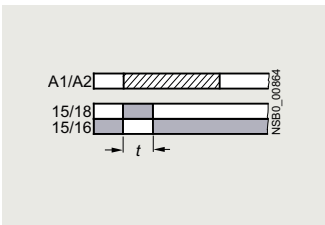

**C**

3RP2005-.A
ON-delay and OFF-delay
with control signal ($t = t_{on} = t_{off}$)



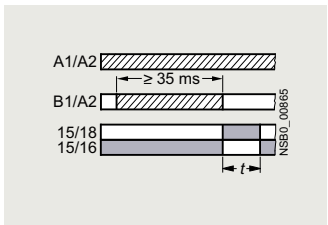

**D**

3RP2005-.A
Flashing, starting with interval
(pulse/interval 1:1)



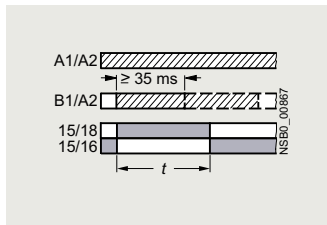

**E**

3RP2005-.A
Passing make contact



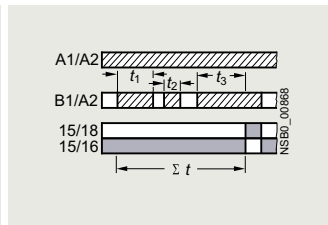

**F**[1)]

3RP2005-.A
Passing break contact with
control signal




**G**

3RP2005-.A
Pulse-forming with control signal
(pulse generation at the output does
not depend on duration of energizing)




**H**

3RP2005-.A
Additive ON-delay with control signal

Legend

**A ... H** Identification letters for 3RP2005

Timing relay energized

Contact closed

Contact open

1) A new control signal at terminal B, after the operating time has started, resets the operating time to zero (retriggerable).

10

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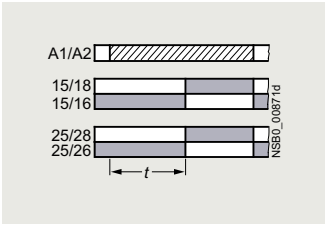
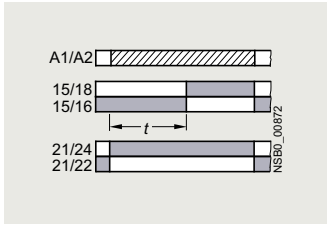
2 CO contacts



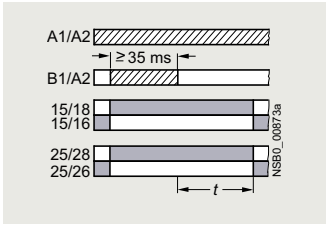

**A**

3RP2005-.B
ON-delay



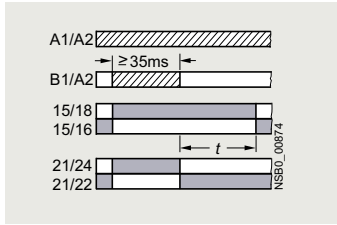

**A●**

3RP2005-.B
ON-delay and instantaneous contact



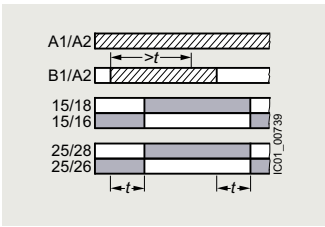

**B**[1)]

3RP2005-.B
OFF-delay with control signal



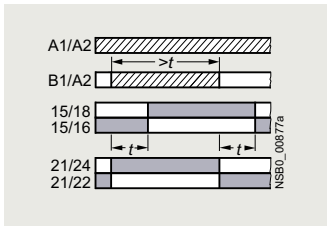

**B●**[1)]

3RP2005-.B
OFF-delay with control signal and instantaneous contact



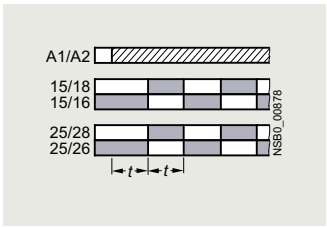

**C**

3RP2005-.B
ON-delay and OFF-delay
with control signal ($t = t_{on} = t_{off}$)



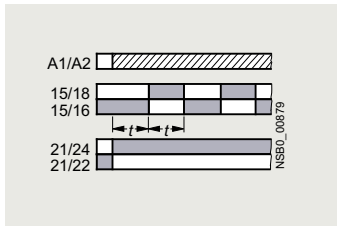

**C●**

3RP2005-.B
ON-delay and OFF-delay
with control signal and instantaneous contact ($t = t_{on} = t_{off}$)




**D**

3RP2005-.B
Flashing, starting with interval
(pulse/interval 1:1)

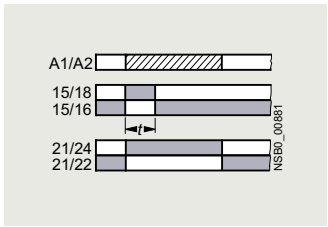



**D●**

3RP2005-.B
Flashing, starting with interval
(pulse/interval 1:1) and instantaneous contact

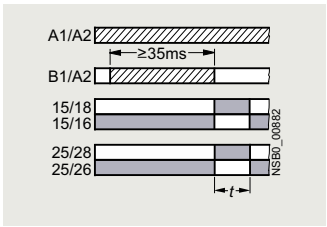
**E**

3RP2005-.B
Passing make contact



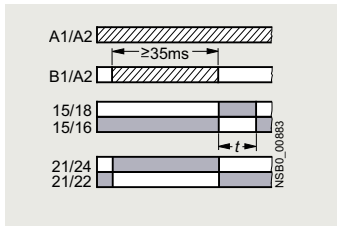

**E●**

3RP2005-.B
Passing make contact and instantaneous contact



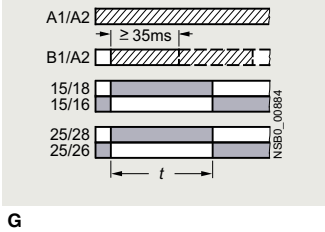

**F**[1)]

3RP2005-.B
Passing break contact with control signal



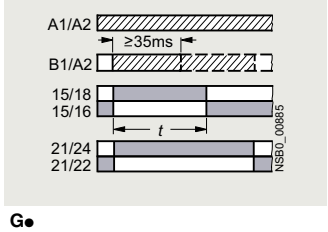

**F●**[1)]

3RP2005-.B
Passing break contact with control signal and instantaneous contact



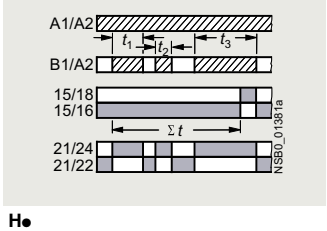

**G**

3RP2005-.B
Pulse-forming with control signal (pulse generation at the output does not depend on duration of energizing)



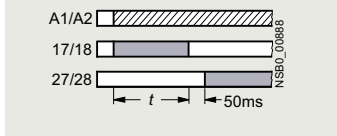

**G●**

3RP2005-.B
Pulse-forming with control signal and instantaneous contact (pulse generation at the output does not depend on duration of energizing)




**H●**

3RP2005-.B
Additive ON-delay with control signal and instantaneous contact




**Y∆**

3RP2005-.B
Star-delta (wye-delta) function

Legend

**A ... H** Identification letters for 3RP2005
● instantaneous contact
Timing relay energized
Contact closed
Contact open

[1)] A new control signal at terminal B, after the operating time has started, resets the operating time to zero (retriggerable).

10

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## SIRIUS 3RP20 timing relays, 45 mm

### Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3RP2005-1AP30

3RP2005-1BW30

3RP2005-2AP30

3RP2005-2BW30

| Version | Time setting range $t$ | Rated control supply voltage $U_s$ 50/60 Hz AC V | Rated control supply voltage $U_s$ DC V | Screw terminals Article No. | Screw terminals Price per PU | Spring-loaded terminals Article No. | Spring-loaded terminals Price per PU |
|---|---|---|---|---|---|---|---|
| **3RP2005 timing relays, multifunction, 15 time setting ranges** | | | | | | | |
| The functions can be adjusted by means of rotary switches. The 3RP2505 timing relay can be set clearly and unmistakably using insert labels for various functions. The corresponding labels can be ordered as an accessory. The same potential must be applied to terminals A. and B. For functions, see 3RP2901 label set, page 10/41. | | | | | | | |
| With LED and 1 CO contact[1], 8 functions | 0.05 ... 1 s<br>0.15 ... 3 s<br>0.5 ... 10 s<br>1.5 ... 30 s<br>0.05 ... 1 min<br>5 ... 100 s<br>0.15 ... 3 min<br>0.5 ... 10 min<br>1.5 ... 30 min<br>0.05 ... 1 h<br>5 ... 100 min<br>0.15 ... 3 h<br>0.5 ... 10 h<br>1.5 ... 30 h<br>5 ... 100 h<br>∞ [2] | 24/100 ... 127<br>24/200 ... 240 | 24<br>24 | **3RP2005-1AQ30**<br>**3RP2005-1AP30** | | **3RP2005-2AQ30**<br>**3RP2005-2AP30** | |
| With LED and 2 CO contacts, 16 functions | | 24 ... 240[3] | 24 ... 240[4] | **3RP2005-1BW30** | | **3RP2005-2BW30** | |
| **3RP2025 timing relays, ON-delay, 15 time setting ranges** | | | | | | | |
| With LED and 1 CO contact[1] | 0.05 ... 1 s<br>0.15 ... 3 s<br>0.5 ... 10 s<br>1.5 ... 30 s<br>0.05 ... 1 min<br>5 ... 100 s<br>0.15 ... 3 min<br>0.5 ... 10 min<br>1.5 ... 30 min<br>0.05 ... 1 h<br>5 ... 100 min<br>0.15 ... 3 h<br>0.5 ... 10 h<br>1.5 ... 30 h<br>5 ... 100 h<br>∞ [2] | 24/100 ... 127<br>24/200 ... 240 | 24<br>24 | **3RP2025-1AQ30**<br>**3RP2025-1AP30** | | **3RP2025-2AQ30**<br>**3RP2025-2AP30** | |

Accessories, see page 10/41.

1) Units with protective separation.

2) With ∞ switch position no timing. For test purposes (ON/OFF function) on site. Relay is constantly on when activated, or relay remains constantly off when activated. Depending on which function is set.

3) Operating range 0.8 to 1.1 x $U_s$.

4) Operating range 0.7 to 1.1 x $U_s$.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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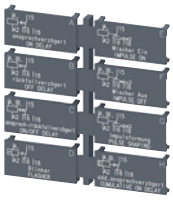
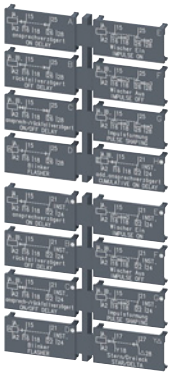
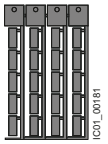
## Accessories

### Label sets for 3RP20

Accessories for 3RP20 (not included in the scope of supply).
The label set can be used to label timing relays with the set function in English and German.

| Version | Function | Identification letter | Use | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
|  3RP2901-0A | | | | | | | | |
| 1 label set (1 unit) with 8 functions | • ON-delay | A | For devices with 1 CO | **3RP2901-0A** | | 1 | 5 units | 41H |
| | • OFF-delay with control signal | B | | | | | | |
| | • ON-delay and OFF-delay with control signal | C | | | | | | |
| | • Flashing, starting with interval | D | | | | | | |
| | • Passing make contact | E | | | | | | |
| | • Passing break contact with control signal | F | | | | | | |
| | • Pulse-forming with control signal | G | | | | | | |
| | • Additive ON-delay with control signal | H | | | | | | |
|  3RP2901-0B | | | | | | | | |
| 1 label set (1 unit) with 16 functions | • ON-delay | A | For devices with 2 CO | **3RP2901-0B** | | 1 | 5 units | 41H |
| | • OFF-delay with control signal | B | | | | | | |
| | • ON-delay and OFF-delay with control signal | C | | | | | | |
| | • Flashing, starting with interval | D | | | | | | |
| | • Passing make contact | E | | | | | | |
| | • Passing break contact with control signal | F | | | | | | |
| | • Pulse-forming with control signal | G | | | | | | |
| | • ON-delay and instantaneous contact | A• | | | | | | |
| | • OFF-delay with control signal and instantaneous contact | B• | | | | | | |
| | • ON-delay and OFF-delay with control signal and instantaneous contact | C• | | | | | | |
| | • Flashing, starting with interval, and instantaneous contact | D• | | | | | | |
| | • Passing make contact and instantaneous contact | E• | | | | | | |
| | • Passing break contact with control signal and instantaneous contact | F• | | | | | | |
| | • Pulse-forming with control signal and instantaneous contact | G• | | | | | | |
| | • Additive ON-delay with control signal and instantaneous contact | H• | | | | | | |
| | • Star-delta (wye-delta) function | Y Δ | | | | | | |

### Blank labels



3RT2900-1SB20

**Unit labeling plates**[1)]
For SIRIUS devices

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| • 20 mm x 7 mm, titanium gray | | | For 3RP20 | **3RT2900-1SB20** | | 100 | 340 units | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.

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## 7PV15 timing relays, 17.5 mm

### Overview

7PV15 timing relay

Electronic timing relays for general use in control systems, mechanical engineering and infrastructure with:

- 1 or 2 CO contacts
- Multifunction or monofunction
- Wide voltage range or combination voltage
- Single or selectable time setting ranges
- Switch position indication and voltage indication by LED

#### *Standards*

The timing relays comply with:

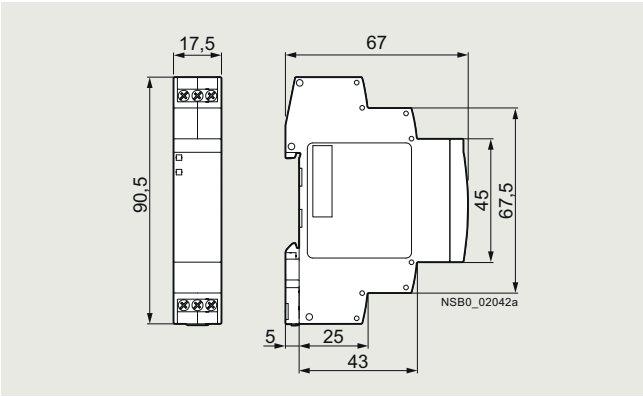
- IEC 60721-3-3 "Classification of environmental conditions"
- IEC 61812-1 "Specified time relays for industrial use"
- IEC 61000-6-2 and IEC 61000-6-4 "Electromagnetic compatibility"
- IEC 60947-5-1 "Low-voltage switchgear and controlgear – Electromechanical control circuit devices"
- DIN 43880 "Built-in equipment for electrical installations; overall dimensions and related mounting dimensions"

#### *Multifunction*

The functions of the 7PV1508-1A multifunctional timing relay can be set by means of rotary switches. The identification letters A to G are printed on the front alongside the rotary selector switch of the unit. The related function can be found in the form of a bar graph on the side of the device.

#### *Enclosure version*

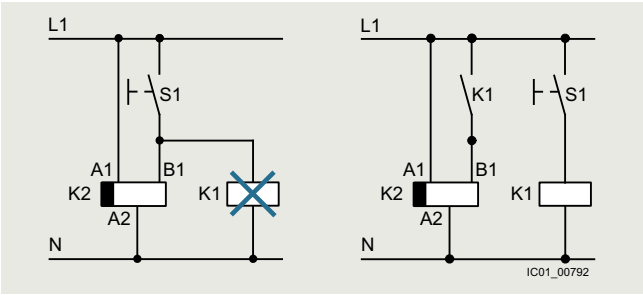
All timing relays are suitable for snap-on mounting on TH 35 DIN rails according to IEC 60715. The enclosure complies with DIN 43880, 1 MW.




Dimensions

Note:

The activation of loads parallel to the start input is not permissible when using AC control voltage.




Diagrams

10

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***Article number scheme***

| Product versions | | Article number | |
|---|---|---|---|
| **Timing relays in industrial enclosure, 17.5 mm** | | **7PV15 ☐☐ – 1 ☐☐ 3 0** | |
| Product function/ time setting ranges | Multifunction | **0 8** | 7 time ranges 0.05 s ... 100 h |
| | ON-delay | **1 1** | 1 time range 0.05 ... 1 s |
| | | **1 2** | 1 time range 0.5 ... 10 s |
| | | **1 3** | 1 time range 5 ... 100 s |
| | | **1 8** | 7 time ranges 0.05 s ... 100 h |
| | OFF-delay with control signal | **3 8** | 7 time ranges 0.05 s ... 100 h |
| | OFF-delay without control signal | **4 0** | 7 time ranges 0.05 s ... 100 s |
| | Clock-pulse relay | **5 8** | 7 time ranges 0.05 s ... 100 h |
| | Star-delta (wye-delta) function | **7 8** | 7 time ranges 0.05 s ... 100 h |
| Contacts | e.g. A = 1 CO | ☐ | |
| Control supply voltage | e.g. W = 12 ... 240 V AC/DC | ☐ | Combination voltage |
| Example | | **7PV15 0 8 – 1 A W 3 0** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

- Wide voltage range 12 to 240 V AC/DC
- High switching capacity, e.g. AC-15 at 230 V, 3 A
- Combination voltage, e.g. 24 V AC/DC and 200 to 240 V AC
- Changes to the time setting range during operation
- Changes to the function in the de-energized state
- High level of functionality and a high repeat accuracy of timer settings
- Integrated surge suppressor
- Function charts printed on the side of the device for reliable device adjustment

## Application

Timing relays are used in control, starting and protective circuits for all switching operations involving time delays, e.g. in functional buildings, airports, building industry, etc.

## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16358/td<br>TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais | Operating Instructions and internal circuit diagrams, see https://support.industry.siemens.com/cs/ww/en/view/35210295 |

| Type | | 7PV15 |
|---|---|---|
| **Rated insulation voltage**<br>Pollution degree 2, overvoltage category III | V AC | 300 |
| **Permissible ambient temperature** | | |
| • During operation | °C | -25 ... +55 |
| • During storage | °C | -40 ... +70 |
| **Operating range of excitation**[1] | | 0.85 ... 1.1 x $U_s$ |
| **Rated operational current $I_e$** | | |
| • AC-15 at 24 ... 240 V, 50 Hz | A | 3 |
| • DC-13 at | | |
| - 24 V | A | 1 |
| - 125 V | A | 0.2 |
| **Uninterrupted thermal current $I_{th}$** | A | 5 |
| **Mechanical endurance** | Operating cycles | 1 x $10^7$ |
| **Electrical endurance at $I_e$** | Operating cycles | 1 x $10^5$ |
| **Connection type** | | **Screw terminals** |
| • Terminal screw | | M3 (for standard screwdriver, size 2 and Pozidriv 2) |
| • Solid | $mm^2$ | 1 x (0.2 ... 2.5) |
| • Finely stranded with end sleeve | $mm^2$ | 1 x (0.25 ... 1.5) |
| • Finely stranded without end sleeve | $mm^2$ | 1 x (0.2 ... 1.5) |
| • AWG cables, solid or stranded | AWG | 1 x (24 ... 14) |
| • Tightening torque | Nm | 0.4 ... 0.5 |

[1] If nothing else is stated.

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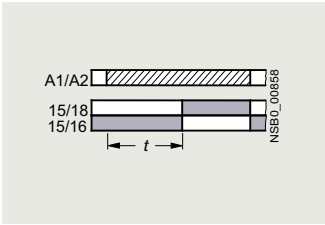
## 7PV15 timing relays, 17.5 mm

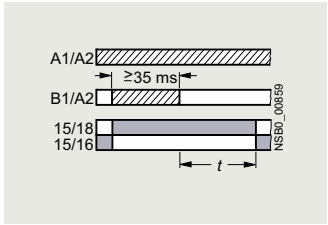
### *7PV15 function diagrams*

1 CO contact




**A**

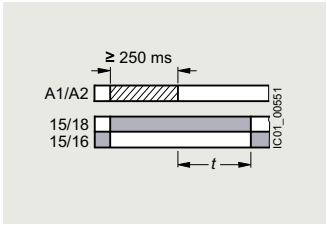
7PV1508-1A, 7PV1511, 7PV1512, 7PV1513, 7PV1518
ON-delay




**B**[1)]

7PV1508-1A, 7PV1538

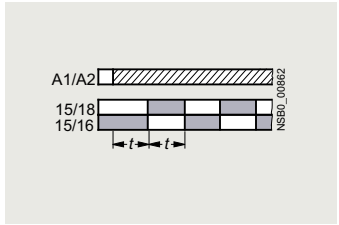
OFF-delay with control signal




**--**

7PV1540

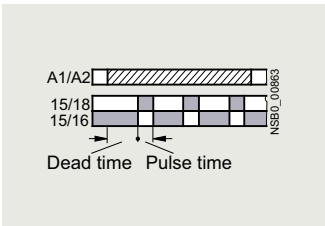
OFF-delay without control signal




**C**

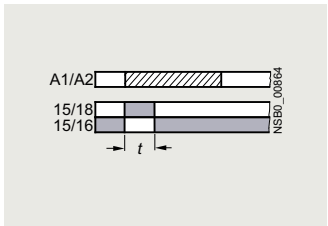
7PV1508-1A

Flashing, starting with interval (pulse/interval 1:1)



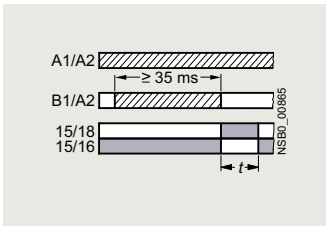

**--**

7PV1558
Clock-pulse, starting with interval (dead time, pulse time, and time setting ranges each separately adjustable)



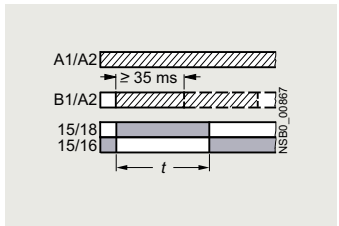

**D**

7PV1508-1A
Passing make contact



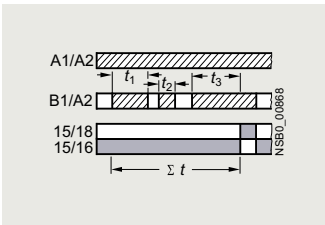

**E**[1)]

7PV1508-1A
Passing break contact with control signal




**F**

7PV1508-1A
Pulse-forming with control signal (pulse generation at the output does not depend on duration of energizing)




**G**

7PV1508-1A
Additive ON-delay with control signal

Legend

**A ... G** Identification letters for 7PV1508

Timing relay energized

Contact closed

Contact open

1) A new control signal at terminal B, after the operating time has started, resets the operating time to zero (retriggerable).

Note:

With the 7PV1508-1A multifunctional timing relay the identification letters A to G are printed on the front alongside the rotary selector switch of the unit. The related function can be found in the form of a bar graph on the side of the device.

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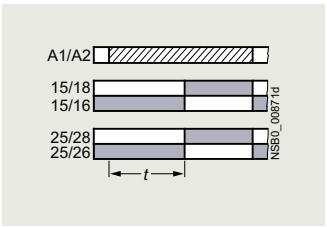
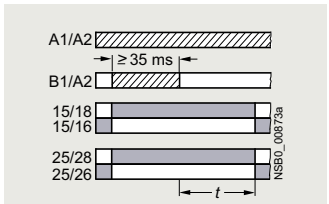
2 CO contacts



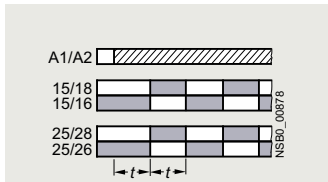

**A**

7PV1508-1B
ON-delay



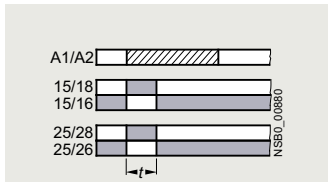

**B**[1)]

7PV1508-1B
OFF-delay with control signal



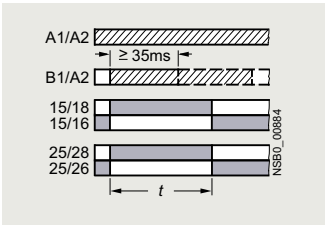

**C**

7PV1508-1B
Flashing, starting with interval (pulse/interval 1:1)



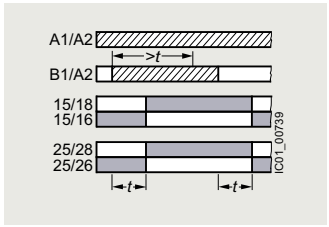

**D**

7PV1508-1B
Passing make contact



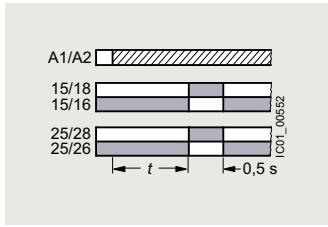

**F**

7PV1508-1B
Pulse-forming with control signal (pulse generation at the output does not depend on duration of energizing)




**H**

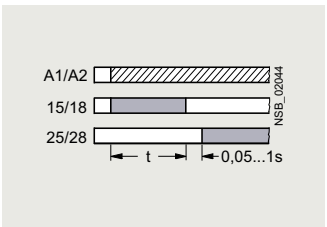
7PV1508-1B
ON-delay and OFF-delay with control signal




**I**

7PV1508-1B
Fixed pulse after ON-delay

2 NO contacts

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7PV1578
Star-delta (wye-delta) function[2)]

Legend

**A ... D, F, H, I** Identification letters for 7PV1508

Timing relay energized

Contact closed

Contact open

1) A new control signal at terminal B, after the operating time has started, resets the operating time to zero (retriggerable).

2) With 7PV1578 the contacts 16 and 26 are not needed for the star-delta (wye-delta) function.

Note:

With the 7PV1508-1B multifunctional timing relay the identification letters A to D, F, H, I are printed on the front alongside the rotary selector switch of the unit. The related function can be found in the form of a bar graph on the side of the device.

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## 7PV15 timing relays, 17.5 mm

### Selection and ordering data

7PV1508-1AW30

7PV1512-1AP30

7PV1518-1AW30

7PV1538-1AW30

7PV1540-1AW30

7PV1558-1AW30

7PV1578-1BW30

| Version | Time setting range $t$ adjustable by rotary switch to | Rated control supply voltage $U_s$ 50/60 Hz AC V | Rated control supply voltage $U_s$ DC V | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **7PV1508 timing relays, multifunction, 7 time setting ranges** | | | | | | | | |
| The functions can be adjusted by means of rotary switches. The same potential must be applied to terminals A. and B. | | | | | | | | |
| With LED and 1 CO contact, 7 functions | 0.05 ... 1 s<br>0.5 ... 10 s<br>5 ... 100 s<br>30 s ... 10 min<br>3 min ... 1 h<br>30 min ... 10 h<br>5 ... 100 h | 12 ... 240 | 12 ... 240 | **7PV1508-1AW30** | | 1 | 1 unit | 41H |
| With LED and 2 CO contacts, 7 functions | | 12 ... 240 | 12 ... 240 | **7PV1508-1BW30** | | 1 | 1 unit | 41H |
| **7PV151. timing relays, ON-delay, 1 time setting range** | | | | | | | | |
| With LED and 1 CO contact | 0.05 ... 1 s | 24/200 ... 240 | 24 | **7PV1511-1AP30** | | 1 | 1 unit | 41H |
| | 0.5 ... 10 s | 24/100 ... 127 | 24 | **7PV1512-1AQ30** | | 1 | 1 unit | 41H |
| | | 24/200 ... 240 | 24 | **7PV1512-1AP30** | | 1 | 1 unit | 41H |
| | 5 ... 100 s | 24/100 ... 127 | 24 | **7PV1513-1AQ30** | | 1 | 1 unit | 41H |
| | | 24/200 ... 240 | 24 | **7PV1513-1AP30** | | 1 | 1 unit | 41H |
| **7PV1518 timing relays, ON-delay, 7 time setting ranges** | | | | | | | | |
| With LED and 1 CO contact | 0.05 ... 1 s<br>0.5 ... 10 s<br>5 ... 100 s<br>30 s ... 10 min<br>3 min ... 1 h<br>30 min ... 10 h<br>5 ... 100 h | 12 ... 240 | 12 ... 240 | **7PV1518-1AW30** | | 1 | 1 unit | 41H |
| **7PV1538 timing relays, OFF-delay, with control signal, 7 time setting ranges** | | | | | | | | |
| With LED and 1 CO contact | 0.05 ... 1 s<br>0.5 ... 10 s<br>5 ... 100 s<br>30 s ... 10 min<br>3 min ... 1 h<br>30 min ... 10 h<br>5 ... 100 h | 12 ... 240 | 12 ... 240 | **7PV1538-1AW30** | | 1 | 1 unit | 41H |
| **7PV1540 timing relays, OFF-delay, without control signal, 7 time setting ranges** | | | | | | | | |
| With LED and 1 CO contact[1)] | 0.05 ... 1 s<br>0.15 ... 3 s<br>0.3 ... 6 s<br>0.5 ... 10 s<br>1.5 ... 30 s<br>3 ... 60 s<br>5 ... 100 s | 12 ... 240 | 12 ... 240 | **7PV1540-1AW30** | | 1 | 1 unit | 41H |
| **7PV1558 timing relays, clock-pulse relay, 7 time setting ranges** | | | | | | | | |
| With LED and 1 CO contact | 0.05 ... 1 s<br>0.5 ... 10 s<br>5 ... 100 s<br>30 s ... 10 min<br>3 min ... 1 h<br>30 min ... 10 h<br>5 ... 100 h | 12 ... 240 | 12 ... 240 | **7PV1558-1AW30** | | 1 | 1 unit | 41H |
| **7PV1578 timing relays, star-delta (wye-delta) function, 7 time setting ranges** | | | | | | | | |
| With LED and 2 NO contacts, dead interval 0.05 ... 1 s adjustable | 0.05 ... 1 s<br>0.5 ... 10 s<br>5 ... 100 s<br>30 s ... 10 min<br>3 min ... 1 h<br>30 min ... 10 h<br>5 ... 100 h | 12 ... 240 | 12 ... 240 | **7PV1578-1BW30** | | 1 | 1 unit | 41H |

[1)] Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control supply voltage once results in contact changeover to the correct setting.

10



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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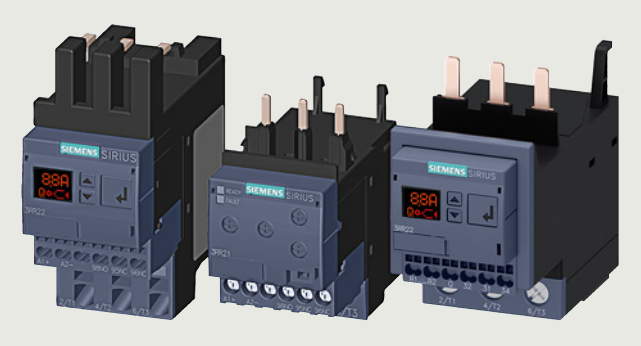
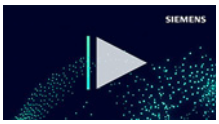
## Overview



SIRIUS 3RR2242, 3RR2142, 3RR2243 current monitoring relays

**More information**

Homepage, see www.siemens.com/sirius-monitoring-relays
Industry Mall, see www.siemens.com/product?3RR21



Video: SIRIUS 3RR2 current monitoring relays

The SIRIUS 3RR2 current monitoring relays are suitable for load monitoring of motors or other loads. In 2 or 3 phases they monitor the rms value of AC currents for overshooting or undershooting of set threshold values.

Whereas apparent current monitoring is used above all in connection with the rated torque or in case of overload, the active current monitoring option can be used to observe and evaluate the load factor over a motor's entire torque range.

The 3RR2 current monitoring relays can be integrated directly in the feeder by mounting on the 3RT2 contactor; separate wiring of the main circuit is therefore superfluous. No separate transformers are required.

For a line-oriented configuration or simultaneous use of an overload relay, terminal supports for stand-alone installation are available for separate DIN-rail mounting.

***Versions***

Basic versions

The basic versions with 2-phase apparent current monitoring, a CO contact output and analog adjustability provide a high level of monitoring reliability especially in the rated and overload range.

Standard versions

The standard versions monitor the current in 3 phases with selectable active current monitoring. They have additional diagnostics options such as residual-current monitoring and phase sequence monitoring, and they are also suitable for monitoring motors below the rated torque. These devices have an additional independent semiconductor output, an actual value indicator, and are digitally adjustable.

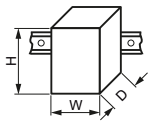
Both versions are available optionally with screw or spring-loaded terminals, in each case for sizes S00 and S0.
With variants of size S2 the main conducting paths always have screw terminals; the control current side can have screw or spring-loaded terminals.

Note:

In addition to the features of the standard versions, the 3RR24 monitoring relays for mounting on 3RT2 contactors for IO-Link also offer the possibility of transmitting the measured values and diagnostics data to a controller via an IO-Link. Furthermore, the devices can be parameterized on the devices themselves or via IO-Link.

For more information, see page 10/55 onwards.

***3RR21 and 3RR22 overview table***

| Features | | 3RR21 | 3RR22 | Benefits |
|---|---|---|---|---|
| **General data** | | | | |
| **Sizes** |  | S00, S0, S2 | S00, S0, S2 | • Are coordinated with the dimensions, connections and technical characteristics of the other devices in the SIRIUS modular system (contactors, soft starters, etc.)<br>• Permit the mounting of slim-line and compact load feeders in widths of 45 mm (S00 and S0) and 55 mm (S2)<br>• Simplify configuration |
| Dimensions in mm (W x H x D)<br>• Screw terminals | | S00: 45 x 79 x 80,<br>S0: 45 x 87 x 91,<br>S2: 55 x 99 x 112 | S00: 45 x 79 x 80,<br>S0: 45 x 87 x 91,<br>S2: 55 x 99 x 112 | |
| • Spring-loaded terminals | | S00: 45 x 90 x 80,<br>S0: 45 x 109 x 92,<br>S2: 55 x 99 x 112 | S00: 45 x 90 x 80,<br>S0: 45 x 109 x 92,<br>S2: 55 x 99 x 112 | |
| **Current range** | | S00: 1.6 ... 16 A<br>S0: 4 ... 40 A<br>S2: 8 ... 80 A | S00: 1.6 ... 16 A<br>S0: 4 ... 40 A<br>S2: 8 ... 80 A | • Is adapted to the other devices in the SIRIUS modular system<br>• Just a single version per size with a wide setting range enables easy configuration |
| **Permissible ambient temperature** | | | | |
| During operation | | -25 ... +60 °C | -25 ... +60 °C | • Suitable for applications in the control cabinet, worldwide |

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## Current and active current monitoring

| Features | 3RR21 | 3RR22 | Benefits |
|---|---|---|---|
| **Monitoring functions** | | | |
| **Current overshoot** | ✓ (2-phase) | ✓ (3-phase) | • Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to overload<br>• Enables detection of filter blockages or pumping against closed gate valves<br>• Enables drawing conclusions about wear, poor lubrication or other maintenance-relevant phenomena |
| **Current undershoot** | ✓ (2-phase) | ✓ (3-phase) | • Enables detection of underload due to a slipping or torn belt<br>• Guarantees protection of pumps against dry running<br>• Facilitates monitoring of the functions of resistive loads such as heaters<br>• Permits energy savings through monitoring of no-load operation |
| **Apparent current monitoring** | ✓ | ✓ (Selectable) | • Precision current monitoring especially in a motor's rated and upper torque range |
| **Active current monitoring** | -- | ✓ (Selectable) | • Optimum current monitoring over a motor's entire torque range through the patented combination of power factor and apparent current monitoring |
| **Range monitoring** | ✓ (2-phase) | ✓ (3-phase) | • Simultaneous monitoring of current overshoot and undershoot with a single device |
| **Phase failure, open circuit** | ✓ (2-phase) | ✓ (3-phase) | • Minimizes heating of three-phase motors during phase failure through immediate disconnection<br>• Prevents operation of hoisting equipment with half the load carrying capacity |
| **Phase sequence monitoring** | -- | ✓ (Selectable) | • Prevents starting of motors, pumps or compressors in the wrong direction of rotation |
| **Internal ground-fault detection (residual-current monitoring)** | -- | ✓ (Selectable) | • Provides optimum protection of loads against high-resistance ground faults due to moisture, condensed water, damage to the insulation material, etc.<br>• Eliminates the need for additional special equipment and thus space in the control cabinet<br>• Reduces wiring overhead and costs |
| **Blocking current monitoring** | -- | ✓ (Selectable) | • Minimizes heating of three-phase motors when blocked during operation through immediate disconnection<br>• Minimizes mechanical loading of the system by acting as an electronic shear pin |
| **Features** | | | |
| **RESET function** | ✓ | ✓ | • Allows manual or automatic resetting of the relay<br>• Resetting directly on the device or by switching the control supply voltage off and on (Remote RESET) |
| **ON-delay time** | 0 ... 60 s | 0 ... 99 s | • Enables motor starting without evaluation of the starting current<br>• Can be used for monitoring motors with lengthy startup |
| **Tripping delay time** | 0 ... 30 s | 0 ... 30 s | • Permits brief threshold value violations during operation<br>• Prevents frequent warnings and disconnections with currents near the threshold values |
| **Operating and indicating elements** | LEDs and rotary potentiometers | Displays and buttons | • For setting the threshold values and delay times and for fast and targeted diagnostics<br>• For selectable functions<br>• Displays for permanent display of measured values |
| **Integrated contacts** | 1 CO contact | 1 CO contact, 1 semiconductor output | • Enable disconnection of the system or process when there is an irregularity<br>• Can be used to output signals |

✓ Available
-- Not available

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| Features | 3RR21 | 3RR22 | Benefits |
|---|---|---|---|
| **Design of load feeders** | | | |
| **Short-circuit strength up to 100 kA at 690 V** (in conjunction with the corresponding fuses or the corresponding motor starter protector) | ✓ | ✓ | • Provides optimum protection of the loads and operating personnel in the event of short circuits due to insulation faults or faulty switching operations |
| **Electrical and mechanical matching to 3RT2 contactors** | ✓ | ✓ | • Simplifies configuration<br>• Reduces wiring overhead and costs<br>• Enables stand-alone installation as well as space-saving direct mounting |
| **Spring-loaded terminals for main circuit (with S00, S0) and auxiliary circuits** | ✓ (Optional) | ✓ (Optional) | • Enable fast connections<br>• Permit vibration-resistant connections<br>• Enable maintenance-free connections |
| **Other features** | | | |
| **Suitable for 1-phase and 3-phase loads** | ✓ | ✓ | • Enables the monitoring of 1-phase systems through parallel infeed at the contactor or looping the current through the three phase connections |
| **Wide setting ranges** | ✓ | ✓ | • Reduce the number of versions<br>• Minimize the configuration overhead and costs<br>• Minimize storage overhead, storage costs, tied-up capital |
| **Wide-voltage supply range** | ✓ (Optional) | ✓ (Optional) | • Reduces the number of versions<br>• Minimizes the configuring overhead and costs<br>• Minimizes storage overhead, storage costs, tied-up capital |

✓ Available

### *Possible combinations of 3RR21/3RR22 monitoring relays with 3RT2 contactors*

| Monitoring relays | Current range | **Contactors** (type, size, operating power) | | |
|---|---|---|---|---|
| | | **3RT201** | **3RT202** | **3RT203** |
| | | S00 | S0 | S2 |
| Type | A | 3/4/5.5/7.5 kW | 5.5/7.5/11/15/18.5 kW | 18.5/22/30/37 kW |
| **3RR2.41** | | | | |
| 3RR2141 | 1.6 ... 16 | ✓ | With stand-alone installation support | With stand-alone installation support |
| 3RR2241 | 1.6 ... 16 | ✓ | With stand-alone installation support | With stand-alone installation support |
| **3RR2.42** | | | | |
| 3RR2142 | 4 ... 40 | With stand-alone installation support | ✓ | With stand-alone installation support |
| 3RR2242 | 4 ... 40 | With stand-alone installation support | ✓ | With stand-alone installation support |
| **3RR2.43** | | | | |
| 3RR2143 | 8 ... 80 | With stand-alone installation support | With stand-alone installation support | ✓ |
| 3RR2243 | 8 ... 80 | With stand-alone installation support | With stand-alone installation support | ✓ |

✓ Available

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## Current and active current monitoring

***Article number scheme***

| Product versions | | Article number | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Monitoring relays** | | **3RR2** | □ | **4** | □ | **–** | □ | □ | □ | **3** | **0** |
| Type of setting | Analogically adjustable, 2-phase | | **1** | | | | | | | | |
| | Digitally adjustable, 3-phase | | **2** | | | | | | | | |
| Size | S00 | | | | **1** | | | | | | |
| | S0 | | | | **2** | | | | | | |
| | S2 | | | | **3** | | | | | | |
| Connection type | Screw terminals | | | | | | **1** | | | | |
| | Spring-loaded terminals<br>Size S00, S0 | | | | | | **2** | | | | |
| | Size S2 | | | | | | **3** | | | | |
| Number and type of outputs | 1 CO contact | | | | | | | **A** | | | |
| | 1 CO contact + 1 semiconductor | | | | | | | **F** | | | |
| Rated control supply voltage | 24 V AC/DC | | | | | | | | **A** | | |
| | 24 ... 240 V AC/DC | | | | | | | | **W** | | |
| Example | | **3RR2** | **1** | **4** | **1** | **–** | **1** | **A** | **A** | **3** | **0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

### Benefits

- Can be mounted directly on 3RT2 contactors and 3RA23 reversing contactor assemblies, in other words, there is no need for additional wiring in the main circuit
- Optimally coordinated with the technical characteristics of the 3RT2 contactors
- No separate current transformer required
- Versions with wide voltage supply range
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Display of actual value and status messages
- All versions with removable control current terminals
- All versions with screw terminals or spring-loaded terminals
- Simple determination of the threshold values through direct reference to actually measured values for setpoint loading
- Range monitoring and selectable active current measurement mean that only one device for monitoring a motor is required along the entire torque curve
- In addition to current monitoring it is also possible to monitor for broken cables, phase failure, phase sequence, residual current and motor blocking

### Application

- Monitoring for current overshoot and undershoot
- Monitoring of broken conductors
- Monitoring of no-load operation and load shedding, e.g. in the event of a torn V-belt or no-load operation of a pump
- Monitoring of overload, e.g. on conveyor belts or cranes due to an excessive load
- Monitoring the functionality of electrical loads such as heaters
- Monitoring of wrong phase sequence on mobile equipment such as compressors or cranes
- Monitoring of high-resistance short circuits or ground faults, e.g. caused by damaged insulation or moisture

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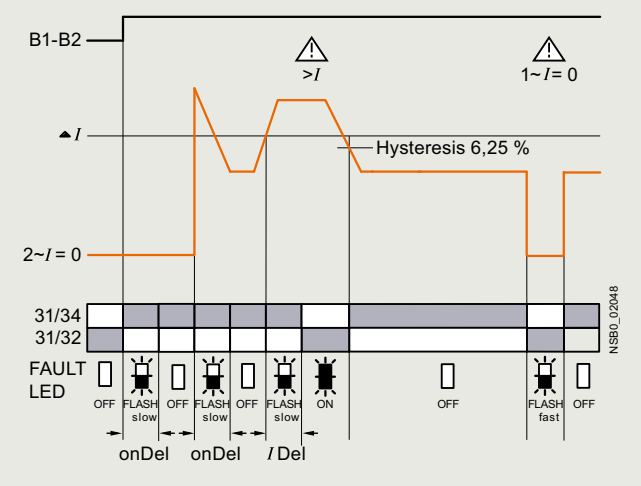
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16205/td | System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 |
| Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/54397927 |
| | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16205/faq |

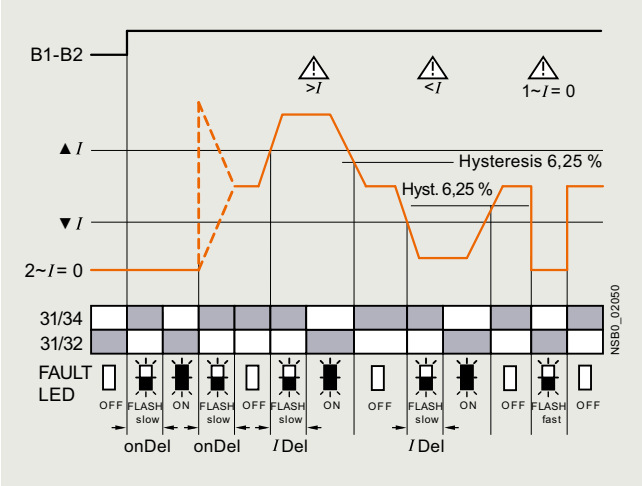
***Function diagrams of 3RR214.-.A.30 basic versions, analogically adjustable***

Closed-circuit principle upon application of the control supply voltage

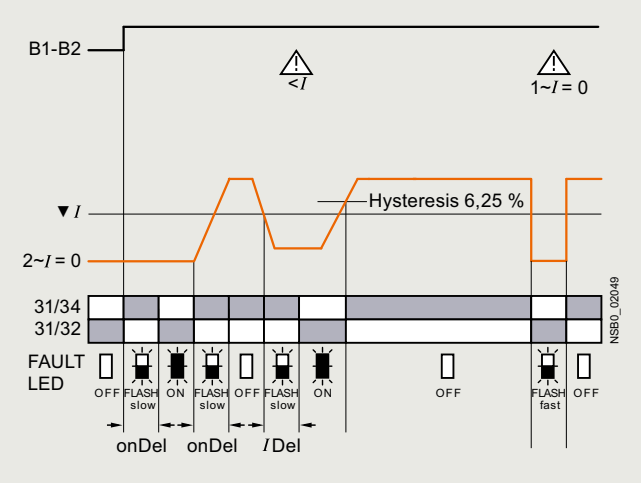
Current overshoot




Range monitoring




Current undershoot

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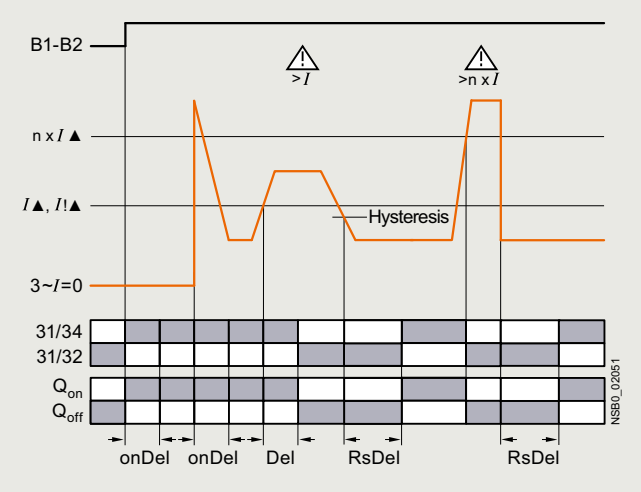
## Current and active current monitoring

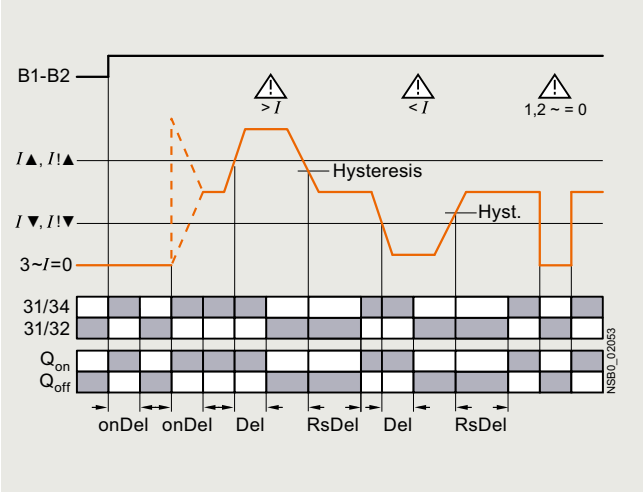
***Function diagrams of 3RR224.-.F.30 standard versions, digitally adjustable***

With the closed-circuit principle selected upon application of the control supply voltage

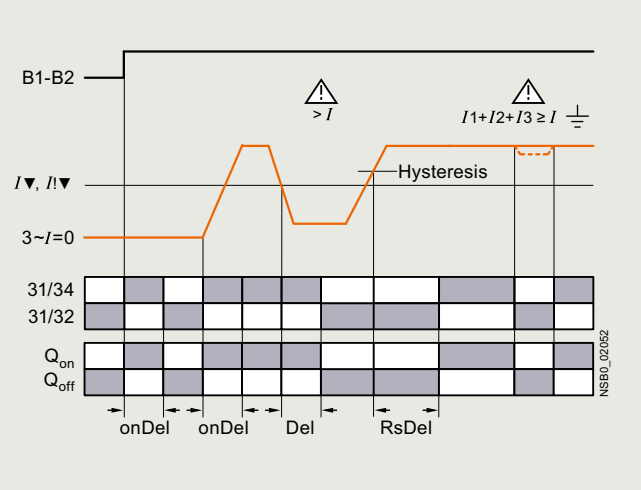
Current overshoot



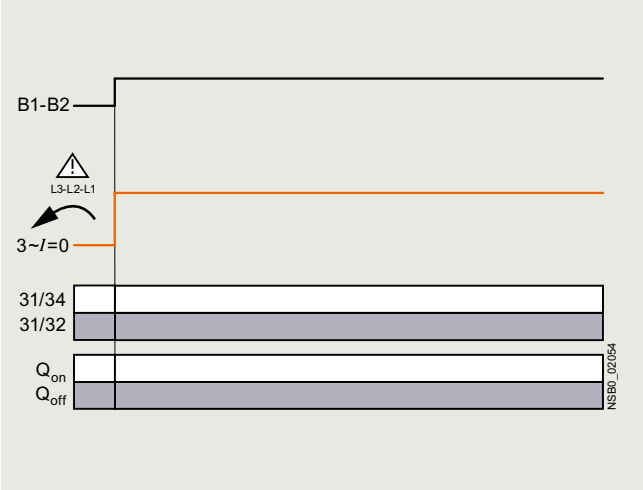

Range monitoring




Current undershoot with residual-current monitoring




Phase sequence monitoring

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## Selection and ordering data

3RR2141-1AW30

3RR2142-1AW30

3RR2241-1FW30

3RR2242-2FW30

3RR2141-2AA30

3RR2243-3FW30

| Size | Measuring range | Hysteresis | Supply voltage $U_s$ | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | A | A | V | | | | | |
| **Basic versions** | | | | | | | | |
| • Analogically adjustable<br>• Closed-circuit principle<br>• 1 CO contact<br>• 2-phase current monitoring<br>• Apparent current monitoring<br>• ON-delay 0 ... 60 s<br>• Tripping delay 0 ... 30 s | | | | | | | | |
| **S00** | 1.6 ... 16 | 6.25% of threshold value | 24 AC/DC | **3RR2141-☐AA30** | | 1 | 1 unit | 41H |
| | | | 24 ... 240 AC/DC | **3RR2141-☐AW30** | | 1 | 1 unit | 41H |
| **S0** | 4 ... 40 | 6.25% of threshold value | 24 AC/DC | **3RR2142-☐AA30** | | 1 | 1 unit | 41H |
| | | | 24 ... 240 AC/DC | **3RR2142-☐AW30** | | 1 | 1 unit | 41H |
| **S2** | 8 ... 80 | 6.25% of threshold value | 24 AC/DC | **3RR2143-☐AA30** | | 1 | 1 unit | 41H |
| | | | 24 ... 240 AC/DC | **3RR2143-☐AW30** | | 1 | 1 unit | 41H |
| **Standard versions** | | | | | | | | |
| • Digitally adjustable<br>• LC display<br>• Open-circuit or closed-circuit principle<br>• 1 CO, 1 semiconductor output<br>• 3-phase current monitoring<br>• Active current or apparent current monitoring<br>• Phase sequence monitoring<br>• Residual-current monitoring<br>• Blocking current monitoring<br>• Reclosing delay time 0 ... 300 min<br>• ON-delay 0 ... 99 s<br>• Separate settings for warning and alarm thresholds<br>• Tripping delay 0 ... 30 s | | | | | | | | |
| **S00** | 1.6 ... 16 | 0.1 ... 3 | 24 AC/DC | **3RR2241-☐FA30** | | 1 | 1 unit | 41H |
| | | | 24 ... 240 AC/DC | **3RR2241-☐FW30** | | 1 | 1 unit | 41H |
| **S0** | 4 ... 40 | 0.1 ... 8 | 24 AC/DC | **3RR2242-☐FA30** | | 1 | 1 unit | 41H |
| | | | 24 ... 240 AC/DC | **3RR2242-☐FW30** | | 1 | 1 unit | 41H |
| **S2** | 8 ... 80 | 0.2 ... 16 | 24 AC/DC | **3RR2243-☐FA30** | | 1 | 1 unit | 41H |
| | | | 24 ... 240 AC/DC | **3RR2243-☐FW30** | | 1 | 1 unit | 41H |

**Type of electrical connection**

| | |
|---|---|
| • Screw terminals | **1** |
| • Spring-loaded terminals size S00, S0 | **2** |
| • Spring-loaded terminals size S2 | **3** |

10

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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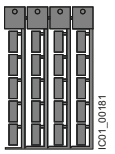
## Current and active current monitoring

### Accessories

| Use | Version | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Terminal supports for stand-alone installation[1]** | | | | | | | |
| 3RU2916-3AA01 | For 3RR21, 3RR22 | For separate mounting of the overload relays or monitoring relays; screw fixing and snap-on mounting on TH 35 DIN-rail according to IEC 60715 | **Screw terminals** | | | | |
| | • Screw terminals | S00 | **3RU2916-3AA01** | | 1 | 1 unit | 41F |
| | | S0 | **3RU2926-3AA01** | | 1 | 1 unit | 41F |
| | | S2 | **3RU2936-3AA01** | | 1 | 1 unit | 41F |
| 3RU2936-3AA01 | | | | | | | |
| | | | **Spring-loaded terminals** | | | | |
| 3RU2926-3AC01 | • Spring-loaded terminals | S00 | **3RU2916-3AC01** | | 1 | 1 unit | 41F |
| | | S0 | **3RU2926-3AC01** | | 1 | 1 unit | 41F |
| **Sealable covers** | | | | | | | |
| 3RR2940 | For 3RR21, 3RR22 | **Sealable covers** For securing against unintentional or unauthorized adjustment of settings | **3RR2940** | | 1 | 5 units | 41H |
| **Blank labels** | | | | | | | |
|  3RT2900-1SB20 | For 3RR21, 3RR22 | **Unit labeling plates[2]** For SIRIUS devices | | | | | |
| | • 20 mm x 7 mm, titanium gray | | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | | |
| 3RA2908-1A | For auxiliary circuit connections | **Screwdrivers** For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals** | | | | |
| | | Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

1) The accessories are exactly the same as the accessories for the 3RU21 thermal overload relay and the 3RB3 electronic overload relay, see page 7/93 onwards.

2) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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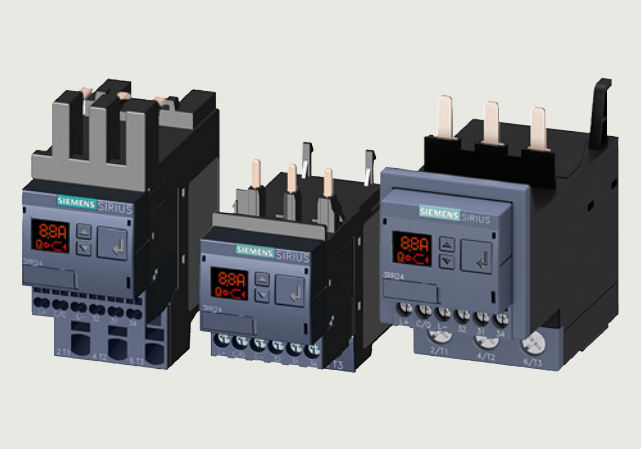
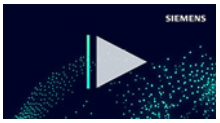
## Overview



SIRIUS 3RR2441, 3RR2442 and 3RR2443 current monitoring relays

**More information**

Homepage, see www.siemens.com/sirius-monitoring-relays
Industry Mall, see www.siemens.com/product?3RR24



Video: SIRIUS 3RR2 current monitoring relays

The SIRIUS 3RR24 current monitoring relays for IO-Link are suitable for the load monitoring of motors or other loads. In 3 phases they monitor the rms value of AC currents for overshooting or undershooting of set threshold values.

Whereas apparent current monitoring is used above all in connection with the rated torque or in case of overload, the active current monitoring option, which is also selectable, can be used to observe and evaluate the load factor over a motor's entire torque range.

The 3RR24 current monitoring relays for IO-Link can be integrated directly in the feeder by mounting on the 3RT2 contactor; separate wiring of the main circuit is therefore superfluous. No separate transformers are required.

For a line-oriented configuration or simultaneous use of an overload relay, terminal supports for stand-alone installation are available for separate DIN-rail mounting.

The SIRIUS 3RR24 current monitoring relays for IO-Link also offer many other options based upon the monitoring functions of the conventional SIRIUS 3RR2 monitoring relays:

- Measured value transmission to a controller, including resolution and unit, may be parameterizable as to which value is cyclically transmitted
- Transmission of alarm flags to a controller
- Full diagnostics capability by inquiry as to the cause of the fault in the diagnostics data record
- Remote parameterization is also possible, in addition to or instead of local parameterization
- Rapid parameterization of the same devices by duplication of the parameterization in the controller
- Parameter transmission through upload to a controller by IO-Link call or by parameter server (if IO-Link master from IO-Link specification V1.1 and higher is used)
- Consistent central data storage in the event of parameter change locally or via a controller
- Automatic reparameterizing when devices are exchanged
- Blocking of local parameterization via IO-Link possible
- Faults are saved in parameterizable and non-volatile fashion to prevent an automatic startup after voltage failure and to make sure diagnostics data are not lost
- Integration into the automation level provides the option of parameterizing the monitoring relays at any time via a display unit, or displaying the measured values in a control room or locally at the machine/control cabinet.

Even without communication via IO-Link the devices continue to function fully autonomously:

- Parameterization can take place locally at the device, independently of a controller.
- In the event of failure or before the controller becomes available the monitoring relays work as long as the control supply voltage (24 V DC) is present.
- If the monitoring relays are operated without the controller, the 3RR24 monitoring relays for IO-Link have, thanks to the integrated SIO mode, an additional semiconductor output, which switches when the adjustable warning threshold is exceeded.

Thanks to the combination of autonomous monitoring relay function and integrated IO-Link communication, redundant sensors and/or analog signal converters – which previously took over the transmission of measured values to a controller, leading to considerable extra cost and wiring overhead – are no longer needed.

Because the output relays are still present, the monitoring relays increase the functional reliability of the system, since only the controller can fulfill the control tasks if the current measured values are available, whereas the output relays can also be used for the disconnection of the system if limit values that cannot be reached during operation are exceeded.

For more information on the IO-Link communications system, see page 2/88 onwards.

Notes on security

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.

For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

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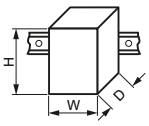
## Current and active current monitoring

***3RR24 overview table***

| Features | | 3RR24 | Benefits |
|---|---|---|---|
| **General data** | | | |
| **Sizes**<br>Dimensions in mm (W x H x D) |  | S00, S0, S2 | • Are coordinated with the dimensions, connections and technical characteristics of the other devices in the SIRIUS modular system (contactors, soft starters, etc.)<br>• Permit the mounting of slim-line and compact load feeders in widths of 45 mm (S00 and S0) and 55 mm (S2)<br>• Simplify configuration |
| • Screw terminals | | S00: 45 x 79 x 80,<br>S0: 45 x 87 x 91,<br>S2: 55 x 99 x 112 | |
| • Spring-loaded terminals | | S00: 45 x 90 x 80,<br>S0: 45 x 109 x 92,<br>S2: 55 x 99 x 112 | |
| **Current range** | | S00: 1.6 ... 16 A<br>S0: 4 ... 40 A<br>S2: 8 ... 80 A | • Is adapted to the other devices in the SIRIUS modular system<br>• Just a single version per size with a wide setting range enables easy configuration |
| **Permissible ambient temperature** | | | |
| During operation | | -25 ... +60 °C | • Suitable for applications in the control cabinet, worldwide |
| **Monitoring functions** | | | |
| **Current overshoot** | | ✓<br>(3-phase) | • Provides optimum inverse-time delayed protection of loads against excessive temperature rises due to overload<br>• Enables detection of filter blockages or pumping against closed gate valves<br>• Enables drawing conclusions about wear, poor lubrication or other maintenance-relevant phenomena |
| **Current undershoot** | | ✓<br>(3-phase) | • Enables detection of underload due to a slipping or torn belt<br>• Guarantees protection of pumps against dry running<br>• Facilitates monitoring of the functions of resistive loads such as heaters<br>• Permits energy savings through monitoring of no-load operation |
| **Apparent current monitoring** | | ✓<br>(Selectable) | • Precision current monitoring especially in a motor's rated and upper torque range |
| **Active current monitoring** | | ✓<br>(Selectable) | • Optimum current monitoring over a motor's entire torque range through the patented combination of power factor and apparent current monitoring |
| **Range monitoring** | | ✓<br>(3-phase) | • Simultaneous monitoring of current overshoot and undershoot with a single device |
| **Phase failure, open circuit** | | ✓<br>(3-phase) | • Minimizes heating of three-phase motors during phase failure through immediate disconnection<br>• Prevents operation of hoisting equipment with half the load carrying capacity |
| **Phase sequence monitoring** | | ✓<br>(Selectable) | • Prevents starting of motors, pumps or compressors in the wrong direction of rotation |
| **Internal ground-fault detection (residual-current monitoring)** | | ✓<br>(Selectable) | • Provides optimum protection of loads against high-resistance ground faults due to moisture, condensed water, damage to the insulation material, etc.<br>• Eliminates the need for additional special equipment<br>• Saves space in the control cabinet<br>• Reduces wiring overhead and costs |
| **Blocking current monitoring** | | ✓<br>(Selectable) | • Minimizes heating of three-phase motors when blocked during operation through immediate disconnection<br>• Minimizes mechanical loading of the system by acting as an electronic shear pin |
| **Operating hours counter** | | ✓ | • Gives the time during which there was a measurable current in at least 2 conducting paths<br>• As an indicator for upcoming preventive maintenance or replacement of machine and system components |
| **Operating cycles counter** | | ✓ | • Is incremented by 1 each time a breaking operation is detected, in other words a transition from 3-phase current flow to no measurable current flow<br>• As an indicator for upcoming preventive maintenance or replacement of contact blocks |

✓ Available

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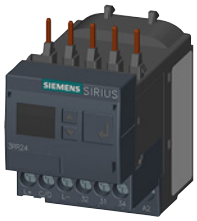


| Features | 3RR24 | Benefits |
|---|---|---|
| **Features** | | |
| **RESET function** | ✓ | • Allows manual or automatic resetting of the relay<br>• Resetting directly on the device, by switching the control supply voltage off and on or via IO-Link (Remote RESET) |
| **ON-delay time** | 0 … 999.9 s | • Enables motor starting without evaluation of the starting current<br>• Can be used for monitoring motors with lengthy startup |
| **Tripping delay time** | 0 ... 999.9 s | • Permits brief threshold value violations during operation<br>• Prevents frequent warnings and disconnections with currents near the threshold values |
| **Operating and indicating elements** | Displays and buttons | • For setting the threshold values and delay times<br>• For selectable functions<br>• For quick and selective diagnostics<br>• Displays for permanent display of measured values |
| **Integrated contacts** | 1 CO contact,<br>1 semiconductor output (in SIO mode) | • Enable disconnection of the system or process when there is an irregularity<br>• Can be used to output signals |
| **Design of load feeders** | | |
| **Short-circuit strength up to 100 kA at 690 V** (in conjunction with the corresponding fuses or the corresponding motor starter protector) | ✓ | • Provides optimum protection of the loads and operating personnel in the event of short circuits due to insulation faults or faulty switching operations |
| **Electrical and mechanical matching to 3RT2 contactors** | ✓ | • Simplifies configuration<br>• Reduces wiring overhead and costs<br>• Enables stand-alone installation as well as space-saving direct mounting |
| **Spring-loaded terminals for main circuit (with S00, S0) and auxiliary circuits** | ✓<br>(Optional) | • Enables fast connections<br>• Permits vibration-resistant connections<br>• Enables maintenance-free connections |
| **Other features** | | |
| **Suitable for 1-phase and 3-phase loads** | ✓ | • Enables the monitoring of 1-phase systems through parallel infeed at the contactor or looping the current through the three phase connections |
| **Wide setting ranges** | ✓ | • Reduce the number of versions<br>• Minimize the configuration overhead and costs<br>• Minimize storage overhead, storage costs, tied-up capital |
| **Power supply** | 24 V DC | • Direct via IO-Link master or via an external auxiliary voltage independent of the IO-Link<br>• Minimizes the configuring overhead and costs |

✓ Available

***Possible ways of combining the 3RR24 monitoring relay with the 3RT2 contactor for IO-Link***

| Monitoring relays | Current range | **Contactors** (type, size, operating power) | | |
|---|---|---|---|---|
| | | **3RT201** | **3RT202** | **3RT203** |
| | | S00 | S0 | S2 |
| Type | A | 3/4/5.5/7.5 kW | 5.5/7.5/11/15/18.5 kW | 18.5/22/30/37 kW |
| 3RR2441 | 1.6 ... 16 | ✓ | With stand-alone installation support | With stand-alone installation support |
| 3RR2442 | 4 ... 40 | With stand-alone installation support | ✓ | With stand-alone installation support |
| 3RR2443 | 8 ... 80 | With stand-alone installation support | With stand-alone installation support | ✓ |

✓ Available

Notes:

Devices required for communication via IO-Link:
- Any controller that supports IO-Link (e.g. ET 200SP with CPU or S7-1200), see Catalog ST 70.
- IO-Link master (e.g. CM 4xIO-Link for SIMATIC ET 200SP, see page 2/99 or SM 1278 for S7-1200, see page 2/98).

Each monitoring relay requires an IO-Link channel.

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## Current and active current monitoring

***Article number scheme***

| Product versions | | Article number |
|---|---|---|
| **3RR24 monitoring relay, digitally adjustable with IO-Link** | | **3RR2 4 4 □ – □ A A 4 0** |
| Size | S00 | **1** |
| | S0 | **2** |
| | S2 | **3** |
| Connection type | Screw terminals | **1** |
| | Spring-loaded terminals<br>Size S00, S0 | **2** |
| | Size S2 | **3** |
| Example | | **3RR2 4 4 1 – 1 A A 4 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

### Benefits

- Can be mounted directly on 3RT2 contactors and 3RA23 reversing contactor assemblies, in other words, there is no need for additional wiring in the main circuit
- Optimally coordinated with the technical characteristics of the 3RT2 contactors
- No separate current transformer required
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Display of actual value and status messages
- All versions with removable control current terminals
- All versions with screw or spring-loaded terminals
- Simple determination of the threshold values through direct reference to actually measured values for setpoint loading
- Range monitoring and selectable active current measurement mean that only one device for monitoring a motor is required along the entire torque curve
- In addition to current monitoring it is also possible to monitor for current asymmetry, broken cables, phase failure, phase sequence, residual current and motor blocking
- Integrated counter for operating cycles and operating hours to support requirements-based preventive maintenance of the monitored machine or application
- Simple cyclical transmission of the current measured values, relay switching states and events to a controller
- Remote parameterization
- Automatic reparameterizing when devices are exchanged
- Simple duplication of identical or similar parameterizations
- Reduction of control current wiring
- Elimination of testing costs and wiring errors
- Reduction of configuration work
- Integration in TIA means clear diagnostics if a fault occurs
- Cost saving and space saving in control cabinet due to the elimination of AI and IO modules as well as analog signal converters and duplicated sensors

### Application

- Monitoring for current overshoot and undershoot
- Monitoring of broken conductors
- Monitoring of no-load operation and load shedding, e.g. in the event of a torn V-belt or no-load operation of a pump
- Monitoring of overload, e.g. on pumps due to a dirty filter system
- Monitoring the functionality of electrical loads such as heaters
- Monitoring of wrong phase sequence on mobile equipment such as compressors or cranes
- Monitoring of high-resistance short circuits or ground faults, e.g. caused by damaged insulation or moisture

The use of SIRIUS monitoring relays for IO-Link is particularly recommended for machines and plants in which these relays, in addition to their monitoring function, are to be connected to the automation level for the rapid, simple and fault-free provision of the current measured values and/or for remote parameterization.

The monitoring relays can either relieve the controller of monitoring tasks or, as a second monitoring entity in parallel to and independent of the controller, increase the reliability in the process or in the system. In addition, the elimination of AI and IO modules allows the width of the controller to be reduced despite significantly expanded functionality.

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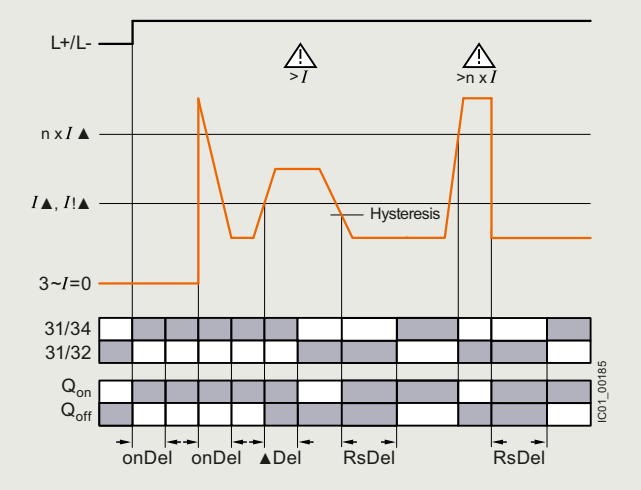
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16206/td | System Manual for modular system, see https://support.industry.siemens.com/cs/ww/en/view/60311318 |
| Configuration Manual for load feeders, see https://support.industry.siemens.com/cs/ww/en/view/39714188 | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/54375430 |
| | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16206/faq |

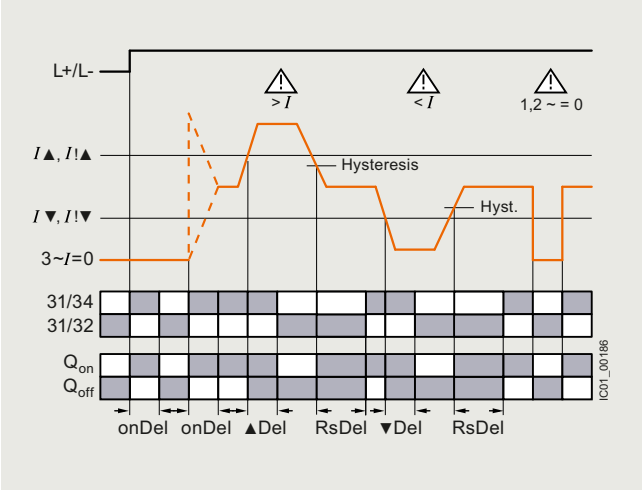
***Function diagrams of 3RR24 for IO-Link, digitally adjustable***

With the closed-circuit principle selected upon application of the control supply voltage

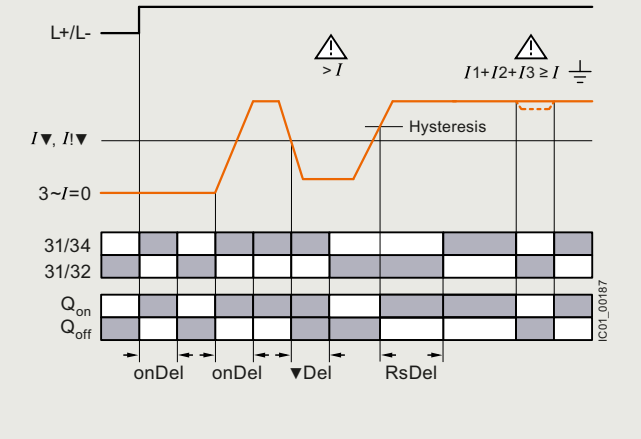
Current overshoot



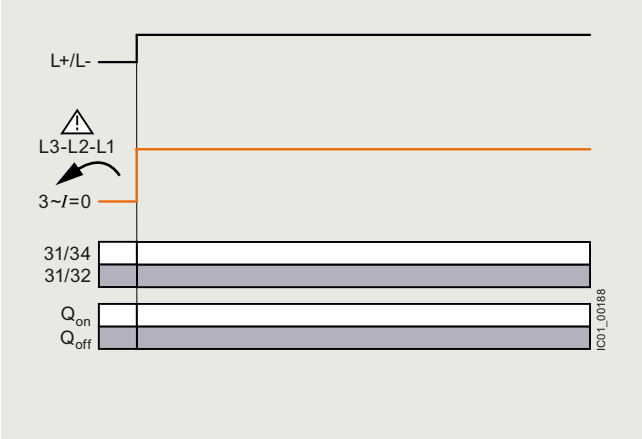

Range monitoring




Current undershoot with residual-current monitoring




Phase sequence monitoring



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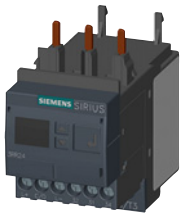
## Selection and ordering data

***SIRIUS 3RR24 current monitoring relays for IO-Link***

3RR2441-1AA40


3RR2442-1AA40

3RR2441-2AA40

3RR2442-2AA40

3RR2443-1AA40

3RR2443-2AA40

| Size | Measuring range | Hysteresis | Supply voltage $U_s$ | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | A | A | V | | | | | |
| • Digitally adjustable<br>• LC display<br>• Open-circuit or closed-circuit principle<br>• 1 CO contact<br>• 1 semiconductor output (in SIO mode)<br>• 3-phase current monitoring<br>• Active current or apparent current monitoring<br>• Current asymmetry monitoring<br>• Phase sequence monitoring<br>• Residual-current monitoring<br>• Blocking current monitoring<br>• Operating hours counter<br>• Operating cycles counter<br>• Reclosing delay time 0 ... 300 min<br>• ON-delay 0 ... 999.9 s<br>• Tripping delay 0 ... 999.9 s<br>• Separate settings for warning and alarm thresholds<br>• Auto or Manual RESET | | | | | | | | |
| **S00** | 1.6 ... 16 | 0.1 ... 3 | 24 DC | **3RR2441-□AA40** | | 1 | 1 unit | 41H |
| **S0** | 4 ... 40 | 0.1 ... 8 | 24 DC | **3RR2442-□AA40** | | 1 | 1 unit | 41H |
| **S2** | 8 ... 80 | 0.2 ... 16 | 24 DC | **3RR2443-□AA40** | | 1 | 1 unit | 41H |

**Type of electrical connection**

| | |
|---|---|
| • Screw terminals | 1 |
| • Spring-loaded terminals size S00, S0 | 2 |
| • Spring-loaded terminals size S2 | 3 |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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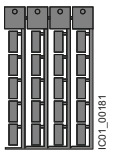
## Accessories

| | Use | Version | Size | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Terminal supports for stand-alone installation[1]** | | | | | | | | |
| 3RU2916-3AA01 | For 3RR24 | For separate mounting of the overload relays or monitoring relays; screw fixing and snap-on mounting on TH 35 DIN-rail according to IEC 60715 | | **Screw terminals** | | | | |
| | | • Screw terminals | S00 | **3RU2916-3AA01** | | 1 | 1 unit | 41F |
| | | | S0 | **3RU2926-3AA01** | | 1 | 1 unit | 41F |
| 3RU2936-3AA01 | | | S2 | **3RU2936-3AA01** | | 1 | 1 unit | 41F |
| | | | | **Spring-loaded terminals** | | | | |
| 3RU2926-3AC01 | | • Spring-loaded terminals | S00 | **3RU2916-3AC01** | | 1 | 1 unit | 41F |
| | | | S0 | **3RU2926-3AC01** | | 1 | 1 unit | 41F |
| **Sealable covers** | | | | | | | | |
| 3RR2940 | For 3RR24 | **Sealable covers** For securing against unintentional or unauthorized adjustment of settings | | **3RR2940** | | 1 | 5 units | 41H |
| **Blank labels** | | | | | | | | |
|  3RT2900-1SB20 | For 3RR24 | **Unit labeling plates[2]** For SIRIUS devices | | | | | | |
| | | • 20 mm x 7 mm, titanium gray | | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | | | |
| 3RA2908-1A | For auxiliary circuit connections | **Screwdrivers** For all SIRIUS devices with spring-loaded terminals | | **Spring-loaded terminals** | | | | |
| | | Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | | **3RA2908-1A** | | 1 | 1 unit | 41B |

1) The accessories are exactly the same as the accessories for the 3RU21 thermal overload relay and the 3RB3 electronic overload relay, see page 7/93 onwards.

2) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.

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## DC load monitoring

### Overview

SIRIUS 3UG546 DC load monitoring relays

**More information**

Homepage, see www.siemens.com/sirius-monitoring-relays
Industry Mall, see www.siemens.com/product?3UG5

The SIRIUS 3UG546 DC load monitoring relays are suitable for monitoring motors, batteries, and other DC equipment. They are also suitable for applications where batteries are used.
The devices monitor the DC current, voltage, and actual power for overshooting or undershooting of the set limit values in 1 or 2 channels. The relays have a CO contact output for alarms and operate on the closed-circuit principle (NC).

The devices are parameterized via PROFINET, and transfer the measured values and diagnostic messages to a controller. Besides providing detailed fault diagnostics, the integrated energy counters, operating hours counters, and operating cycle counters can also be read out and reset.

When metering energy consumption, the SIRIUS 3UG546 DC load monitoring relays distinguish the direction of current flow and can thus, for example, separately sense the quantities of energy stored in or drawn from a battery.

| Features | 3UG5461-1AA4., 3UG5462-1AA4. |
|---|---|
| **DC monitoring** | |
| Monitoring the DC current for undershoot | ✓ |
| Monitoring the DC current for overshoot | ✓ |
| Range monitoring | ✓ |
| **Voltage monitoring** | |
| Monitoring the voltage for undershoot | ✓ |
| Monitoring the voltage for overshoot | ✓ |
| Range monitoring | ✓ |
| **Power monitoring** | |
| Monitoring the power for undershoot | ✓ |
| Monitoring the power for overshoot | ✓ |
| Range monitoring | ✓ |
| **Delay times** | |
| ON-delay | ✓ |
| Tripping delay | ✓ |
| **Operating hours counter** | |
| Monitoring for overshoot | ✓ |
| **Operating cycles counter** | |
| Monitoring for overshoot | ✓ |
| **Energy recovery counter** | |
| Monitoring for overshoot | ✓ |
| **Energy consumption counter** | |
| Monitoring for overshoot | ✓ |
| **PROFINET IO functions** | |
| Ethernet services | ✓ |
| Port diagnostics | ✓ |
| Min. update time | 2 ms |
| Resetting of communication parameters to factory settings | ✓ |
| PROFINET RT (real-time communication) | ✓ |
| Firmware update via PROFINET IO | ✓ |
| I&M identification data 0 to 3 | ✓ |

✓ Available

### *Article number scheme*

| Product versions | | Article number | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Monitoring relays** | | **3UG546** | ☐ | – | 1 | A | A | 4 | ☐ |
| Current measuring range | 2 x 8 A/1 x 16 A | | **1** | | | | | | |
| | 1 x 63 A | | **2** | | | | | | |
| Voltage range | 0 ... 800 V | | | | | | | | **0** |
| | 0 ... 60 V | | | | | | | | **1** |
| Example | | **3UG546** | **1** | – | 1 | A | A | 4 | **0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

### Benefits

- Wide voltage measuring range of up to 800 V
- 60 V versions especially for applications where batteries are used
- Detection and monitoring of current, voltage and power in a single device
- Detailed fault diagnostics
- Energy metering with distinction of direction of current flow
- Communication and visualization via PROFINET and thus quick and easy integration for visualizing plant energy values
- Integration in the TIA Portal
- Customary screw terminals for quick and reliable wiring
- Device replacement without renewed wiring thanks to removable terminals

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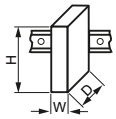
## Application

- Exhaustive discharge protection on battery-operated vehicles
- Acquisition of energy flows, incl. energy recovery, e.g. for robots
- DC line monitoring
- DC heaters
- Lighting systems
- Energy management
- Condition monitoring

## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25412/td | Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/ps/25412/man<br>FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25412/faq |

| Article number | | 3UG5461-1AA40 | 3UG5461-1AA41 | 3UG5462-1AA40 | 3UG5462-1AA41 |
|---|---|---|---|---|---|
| **General technical specifications:** | | | | | |
| **Dimensions (W x H x D)**   | | 22.5 x 100 x 141.6 | | 45 x 100 x 141.6 | |
| **Type of electrical separation** | | Protective separation | | | |
| **Electrical endurance (operating cycles) for relay outputs, maximum** | | 100 000, 0.5 A, 125 V AC, for resistive load up to 40 °C | | | |
| **Mechanical endurance (operating cycles), typical** | | 10 000 000 | | | |
| **Power loss [W], maximum** | W | 3 | | | |
| **Adjustable response value current 1** | A | -8 ... +8 | | -63 ... +63 | |
| **Adjustable response value current 2** | A | -8 ... +8 | | -- | |
| **Adjustable ON-delay time** | | | | | |
| • On starting | s | 0 ... 999 | | | |
| • On upper or lower limit violation | s | 0 ... 999 | | | |
| **Adjustable voltage range** | V | 0 ... 800 | 0 ... 60 | 0 ... 800 | 0 ... 60 |
| **Minimum supply voltage failure buffering time** | ms | 10 | | | |
| **Reaction time, maximum** | ms | 100 | | | |
| **Degree of protection IP on the front according to IEC 60529** | | IP20 | | | |
| **Touch protection on the front according to IEC 60529** | | Finger-safe | | Finger-safe for vertical touching from the front | |
| **Type of mounting** | | Screw fixing and snap-on mounting on 35 mm DIN-rail | | | |
| • Mounting position | | Any | | | |
| **Installation altitude at height above sea level, maximum** | m | 2 000 | | | |
| **Ambient temperature** | | | | | |
| • During operation | °C | -25 ... +60 | | | |
| • During storage | °C | -40 ... +80 | | | |
| **Relative temperature-related measurement deviation** | % | 0.5 | | | |
| **Number of ports at the interface 1** | | 1 | | | |
| **Product function** | | | | | |
| • Operating cycles counter | | Yes | | | |
| • Operating hours counter | | Yes | | | |
| • Auto RESET | | Yes | | | |
| • Manual RESET | | Yes | | | |
| • Overvoltage detection DC | | Yes | | | |
| • Overcurrent detection DC | | Yes | | | |
| • Undervoltage detection DC | | Yes | | | |
| • Undercurrent detection DC | | Yes | | | |
| **Product component** | | | | | |
| • Removable terminal for main circuit | | Yes | | No | |
| • Removable terminal for auxiliary and control circuit | | Yes | | | |

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## DC load monitoring

| Article number | | 3UG5461-1AA40 | 3UG5461-1AA41 | 3UG5462-1AA40 | 3UG5462-1AA41 |
|---|---|---|---|---|---|
| **Measuring circuit:** | | | | | |
| **Relative measuring accuracy with reference to the full-scale value** | % | 2 | | | |
| **Number of CO contacts for auxiliary contacts** | | 1 | | | |
| **Control circuit:** | | | | | |
| **Current-carrying capacity of the output relay at DC-13 at 24 V** | A | 1 | | | |
| **Thermal current of the non-solid-state contact blocks, maximum** | A | 1 | | | |
| **Type of voltage for monitoring** | | DC | | | |
| **Type of current for monitoring** | | DC | | | |
| **Supply voltage type** | | DC | | | |
| **Supply voltage 1 at DC, rated value** | V | 24 | | | |
| **Supply voltage:** | | | | | |
| **Operating range factor of the supply voltage, rated value at DC** | | 0.85 ... 1.15 | | | |

| Article number | | 3UG5461-1AA40 | 3UG5461-1AA41 | 3UG5462-1AA40 | 3UG5462-1AA41 |
|---|---|---|---|---|---|
| **Type of electrical connection** | | **Screw terminals** | | | |
| **Connectable conductor cross-section for auxiliary contacts** | | | | | |
| • Solid | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) | | | |
| • Finely stranded with end sleeve | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 1.5) | | | |
| • For AWG cables | | 1 x (20 ... 12), 2 x (20 ... 14) | | | |
| **Connectable conductor cross-section for main contacts** | | | | | |
| • Solid | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) | | 2 x (1 ... 16), 1 x (1 ... 16) | |
| • Finely stranded with end sleeve | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) | | 2 x (1 ... 25), 1 x (1 ... 35) | |
| • Stranded | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) | | 2 x (1 ... 16), 1 x (1 ... 16) | |
| • For AWG cables | | 1 x (20 ... 12), 2 x (20 ... 14) | | 1 x (18 ... 1), 2 x (18 ... 2) | |

The SIRIUS 3UG546 DC load monitoring relays monitor a DC load current circuit for undershooting or overshooting of set limit values in 1 or 2 channels. Current, voltage, and power can be monitored separately. When the relays measure the current, they also detect the direction of current and have separate counters for measuring energy consumption and energy recovery.

The devices count the operating cycles and the operating hours of the connected loads as well as the operating cycles of the internal relay. All counters can be monitored for settable limit values and the counter statuses can be reset (with the exception of the operating cycle counter of the internal relay).

The SIRIUS 3UG546 DC load monitoring relays are parameterized exclusively via a PROFINET interface. All measured values and counter values as well as other diagnostics data are transmitted to a controller via PROFINET. The relays can also be operated without PROFINET. If communication fails, the monitoring function continues to be reliably executed. The internal relay, which is switched as a signaling output that responds when a set limit value is undershot or overshot, responds to detected system faults.

All monitored counter values and measured values can be additionally assigned a warning limit, which generates an alarm via PROFINET when the set value is undershot or overshot. Violations of the set limit values are also signaled as an alarm via PROFINET.

The devices are supplied via an external 24 V DC voltage source.

The integral counters for operating hours and operating cycles support operators in requirement-oriented preventive plant maintenance. The operating hours counter outputs the time during which a measurable current flows. The properties of the insulation material of the motor windings, for example, deteriorate during operation due to the thermal load. The operating hours serve as an indicator of upcoming preventive maintenance or replacement of machine parts and system components.

The operating cycles counter is incremented by one each time a breaking operation of the monitored load is detected (transition from current flow to no measurable current flow). The number of operating cycles serves as an indicator of upcoming preventive maintenance or replacement of contact blocks. Arcs in breaking operations cause high loads and wear in particular in DC current circuits.

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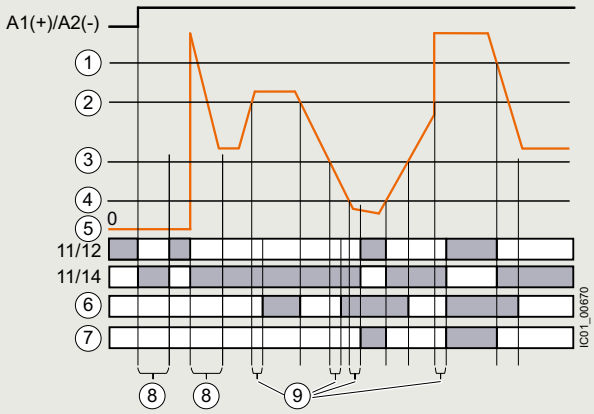
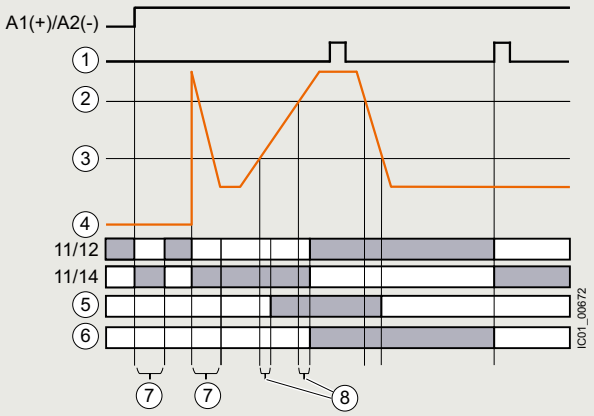
With the closed-circuit principle selected upon application of the control supply voltage

Monitoring for overshooting and undershooting of a measured value including parameterized warning limit/current flow in one direction only/automatic RESET



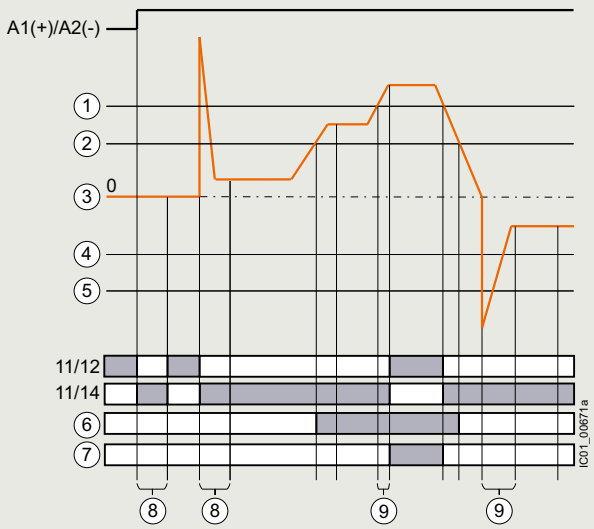

1 Threshold for overshoot
2 Warning threshold for overshoot
3 Warning threshold for undershoot
4 Threshold for undershoot
5 Measured value
6 PROFINET diagnostic interrupt (warning)
7 PROFINET diagnostic interrupt (fault)
8 ON-delay time
9 Tripping delay time

Monitoring for overshooting of a measured value including parameterized warning limit/manual RESET




1 RESET
2 Threshold for overshoot
3 Warning threshold for overshoot
4 Measured value
5 PROFINET diagnostic interrupt (warning)
6 PROFINET diagnostic interrupt (fault)
7 ON-delay time
8 Tripping delay time

Monitoring for overshooting and undershooting of a measured value including parameterized warning limit/current flow in both directions (energy consumption and energy recovery)/ automatic RESET




1 Threshold for overshoot
2 Warning threshold for overshoot
3 Measured value
4 Warning threshold for undershoot
5 Threshold for undershoot
6 PROFINET diagnostic interrupt (warning)
7 PROFINET diagnostic interrupt (fault)
8 ON-delay time
9 Tripping delay time

10

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## DC load monitoring

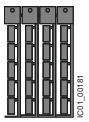
### Selection and ordering data

3UG5461-1AA40

3UG5462-1AA40

| Measurable voltage | Measurable current | Width | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| V | A | mm | | | | | |
| **DC load monitoring relay** | | | | | | | |
| 0 ... 800 | 2 x 8/1 x 16 | 22.5 | **3UG5461-1AA40** | | 1 | 1 unit | 41H |
| | 1 x 63 | 45 | **3UG5462-1AA40** | | 1 | 1 unit | 41H |
| 0 ... 60 | 2 x 8/1 x 16 | 22.5 | **3UG5461-1AA41** | | 1 | 1 unit | 41H |
| | 1 x 63 | 45 | **3UG5462-1AA41** | | 1 | 1 unit | 41H |

### Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminals for SIRIUS devices in the industrial DIN-rail enclosure** | | | | | | |
| <br>3ZY1122-1BA00 | **Removable terminals**<br>• 2-pole, up to 1 x 4 mm² or 2 x 2.5 mm² | **Screw terminals**<br>**3ZY1122-1BA00** | | 1 | 6 units | 41L |
| **Accessories for enclosures** | | | | | | |
| <br>3ZY1311-0AA00 | **Push-in lugs**<br>For wall mounting | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| <br>3ZY1440-1AA00 | **Coding pins**<br>For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; they enable the mechanical coding of terminals | **3ZY1440-1AA00** | | 1 | 12 units | 41L |
| <br> <br>3ZY1450-1AB00 | **Hinged cover**<br>Replacement cover, without terminal labeling, titanium gray<br>• 22.5 mm wide | **3ZY1450-1AB00** | | 1 | 5 units | 41L |
| **Blank labels** | | | | | | |
|  <br>3RT2900-1SB20 | **Unit labeling plates**[1]<br>For SIRIUS devices<br>• 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | |
| <br>3RA2908-1A | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals<br>Length approx. 200 mm,<br>3.0 mm x 0.5 mm,<br>titanium gray/black,<br>partially insulated | **Spring-loaded terminals (push-in)**<br>**3RA2908-1A** | | 1 | 1 unit | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

SIRIUS 3UG4 monitoring relay

**More information**

Homepage, see www.siemens.com/sirius-monitoring-relays
Industry Mall, see www.siemens.com/product?3UG45
TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais
Conversion tool, see www.siemens.com/conversion-tool

The field-proven SIRIUS monitoring relays for electrical and mechanical variables enable constant monitoring of all important characteristic quantities that provide information about the functional capability of a plant. Both sudden disturbances and gradual changes, which may indicate the need for maintenance, are detected. Thanks to their relay outputs, the monitoring relays permit direct disconnection of the affected system components as well as alerting (e.g. by switching a warning lamp).

Thanks to adjustable delay times the monitoring relays can respond very flexibly to brief faults such as voltage dips or load changes. This avoids unnecessary alarms and disconnections while enhancing plant availability.

The individual 3UG4 monitoring relays offer the following functions in various combinations:

- Undershooting and/or overshooting of liquid levels
- Phase sequence
- Phase failure, neutral conductor failure
- Phase asymmetry
- Undershooting and/or overshooting of limit values for voltage
- Undershooting and/or overshooting of limit values for current
- Undershooting and/or overshooting of limit values for power factor
- Monitoring of the active current or the apparent current
- Monitoring of the residual current
- Monitoring of the insulation resistance
- Undershooting and/or overshooting of limit values for speed

### *Article number scheme*

| Product versions | | Article number |
|---|---|---|
| **Monitoring relays** | | **3UG4** □ □ □ – □ □ □ □ **0** |
| Type of setting | e.g. 5 = analogically adjustable | □ |
| Functions | e.g. 11 = line monitoring | □ □ |
| Connection type | Screw terminals | **1** |
| | Spring-loaded terminals | **2** |
| Contacts | e.g. A = 1 CO contact | □ |
| Supply voltage | e.g. N2 = 160 ... 260 V AC | □ □ |
| Example | | **3UG4 5 1 1 – 1 A N 2 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## General data

### Benefits

- Customary screw and spring-loaded terminals for quick and reliable wiring
- Fast commissioning thanks to menu-guided parameterization and actual value display for limit value determination
- Reduced space requirement in the control cabinet thanks to a consistent width of 22.5 mm
- Parameterizable monitoring functions, delay times, RESET response, etc.
- Reduced stockkeeping thanks to minimized variance and large measuring ranges
- Wide-voltage power supply units for global applicability
- Device replacement without renewed wiring thanks to removable terminals
- Reliable system diagnostics thanks to actual value display and connectable fault storage
- Rapid diagnostics thanks to unambiguous fault messages on the display

### Application

The SIRIUS 3UG4 monitoring relays monitor the most diverse electrical and mechanical quantities in the feeder, and provide reliable protection against damage in the plant. For this purpose, they offer freely parameterizable limit values and diverse options for adapting to the respective task, and in the event of a fault, they provide clear diagnostics information.

The digitally adjustable products also display the current measured values direct on the device. This not only facilitates the display of valuable plant status information during operation, it also enables adjustment of the monitored limit values in accordance with the actual conditions.

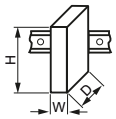
The positive result: More selective avoidance of production faults – sustained increases in availability and productivity.

The 3UG4 monitoring relays are available for the following applications:

- Line and 1-phase voltage monitoring
- 1-phase current monitoring or power factor and active current monitoring
- Residual-current monitoring
- Insulation monitoring
- Level monitoring
- Speed monitoring

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16367/td | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16367/faq |
| Equipment Manual and internal circuit diagrams, see https://support.industry.siemens.com/cs/ww/en/view/54397927 | |

| Type | | | 3UG |
|---|---|---|---|
| **General data** | | | |
| Dimensions (W x H x D) |  | | |
| • For 2 terminal blocks | | | |
| - Screw terminals | | mm | 22.5 x 83 x 91 |
| - Spring-loaded terminals | | mm | 22.5 x 84 x 91 |
| • For 3 terminal blocks | | | |
| - Screw terminals | | mm | 22.5 x 92 x 91 |
| - Spring-loaded terminals | | mm | 22.5 x 94 x 91 |
| • For 4 terminal blocks | | | |
| - Screw terminals | | mm | 22.5 x 103 x 91 |
| - Spring-loaded terminals | | mm | 22.5 x 103 x 91 |
| **Permissible ambient temperature** | | | |
| • During operation | | °C | -25 ... +60 |
| **Connection type** | | | **Screw terminals** |
| • Terminal screw | | | M3 (for standard screwdriver, size 2 and Pozidriv 2) |
| • Solid | | $mm^2$ | 1 x (0.5 ... 4)/2 x (0.5 ... 2.5) |
| • Finely stranded with end sleeve | | $mm^2$ | 1 x (0.5 ... 2.5)/2 x (0.5 ... 1.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (20 ... 14) |
| **Connection type** | | | **Spring-loaded terminals** |
| • Solid | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded, with end sleeve according to DIN 46228 | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (24 ... 16) |

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## Overview

SIRIUS 3UG4616 monitoring relay

Electronic line monitoring relays provide maximum protection for mobile machines and plants or for unstable networks. Network and voltage faults can thus be detected early and rectified before far greater damage ensues.

Depending on the version, the relays monitor phase sequence, phase failure with and without N conductor monitoring, phase asymmetry, undervoltage or overvoltage.

Phase asymmetry is evaluated as the difference between the greatest and the smallest phase voltage relative to the greatest phase voltage. Undervoltage or overvoltage exists when at least one phase voltage deviates by 20% from the set rated system voltage or the directly set limit values are overshot or undershot. The rms value of the voltage is measured.

With the 3UG4617 or 3UG4618 relay, a wrong direction of rotation can also be corrected automatically.

## Benefits

- Can be used without auxiliary voltage in any network from 160 to 630 V AC worldwide thanks to wide voltage range
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Permanent display of actual value and line fault type on the digital versions
- Automatic correction of the direction of rotation by distinguishing between power system faults and wrong phase sequence
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

## Application

The relays are used above all for mobile equipment, e.g. air conditioning compressors, refrigerating containers, building site compressors and cranes.

| Function | Application |
|---|---|
| Phase sequence | • Direction of rotation of the drive |
| Phase failure | • A fuse has tripped<br>• Failure of the control supply voltage<br>• Broken cable |
| Phase asymmetry | • Overheating of the motor due to asymmetrical voltage<br>• Detection of asymmetrically loaded networks |
| Undervoltage | • Increased current on a motor with corresponding overheating<br>• Unintentional resetting of a device<br>• Network collapse, particularly with battery power |
| Overvoltage | • Protection of a plant against destruction due to overvoltage |

## Technical specifications

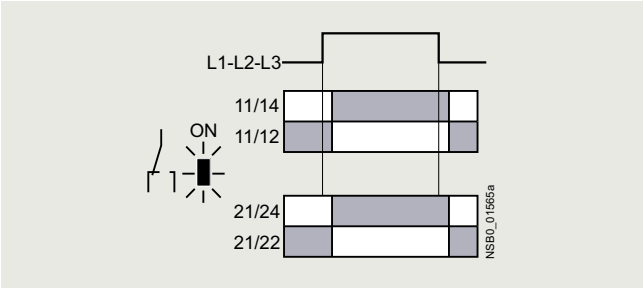
***3UG4511 monitoring relays***

The 3UG4511 phase sequenced relay monitors the phase sequence in a 3-phase network. No adjustments are required for operation. The device has an internal power supply and works using the closed-circuit principle. If the phase sequence at the terminals L1-L2-L3 is correct, the output relay picks up after the delay time has elapsed and the green LED is lit. If the phase sequence is wrong, the output relay remains in its rest position.

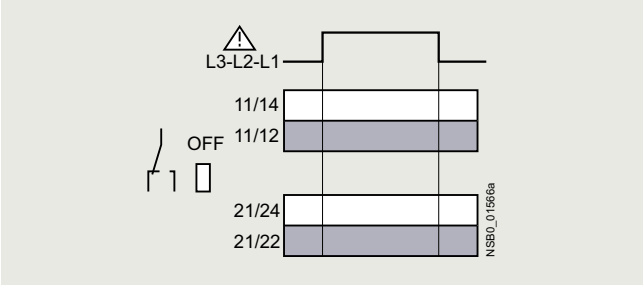
Note:

When one phase fails, connected loads (motor windings, lamps, transformers, coils, etc.) create a feedback voltage at the terminal of the failed phase due to the network coupling. Because the 3UG4511 relays are not resistant to voltage feedback, such a phase failure is not detected. Should this be required, then the 3UG4512 monitoring relay must be used.

Correct phase sequence




Wrong phase sequence



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## Line monitoring

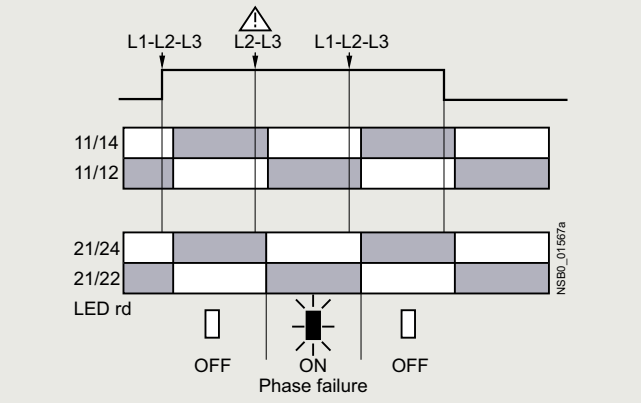
### *3UG4512 monitoring relays*

The 3UG4512 line monitoring relay monitors 3-phase networks with regard to phase sequence, phase failure and phase asymmetry of 10%. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V AC and feedback through the load of up to 90%. The device has an internal power supply and works using the closed-circuit principle. No adjustments are required. If the line voltage is switched on, the green LED will light up. If the phase sequence at the terminals L1-L2-L3 is correct, the output relay picks up. If the phase sequence is wrong, the red LED flashes and the output relay remains in its rest position. If a phase fails, the red LED is permanently lit and the output relay drops.

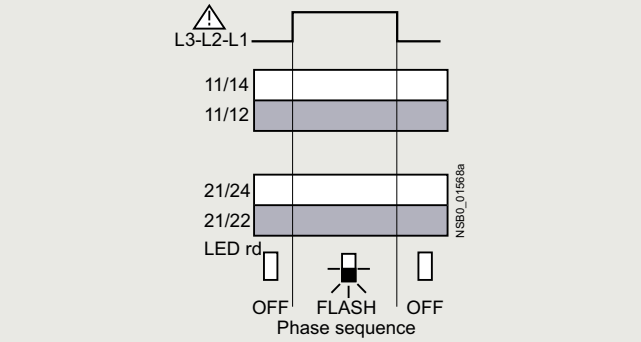
Note:

The red LED is a fault diagnostic indicator and does not show the current relay status. The 3UG4512 monitoring relay is suitable for line frequencies of 50/60 Hz.

Phase failure




Wrong phase sequence



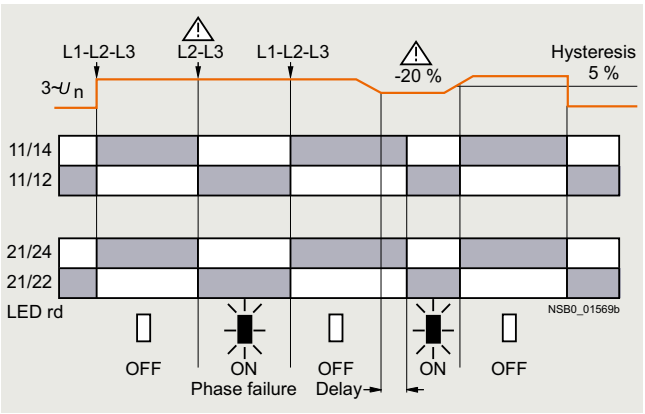

### *3UG4513 monitoring relays*

The 3UG4513 line monitoring relay monitors 3-phase networks with regard to phase sequence, phase failure, phase asymmetry and undervoltage of 20%. The device has an internal power supply and works using the closed-circuit principle.
The hysteresis is 5%. The integrated response delay time T is adjustable from 0 to 20 s and responds to undervoltage. If the direction is incorrect, the device switches off immediately. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V and feedback through the load of up to 80%. If the line voltage is switched on, the green LED will light up. If the phase sequence at the terminals L1-L2-L3 is correct, the output relay picks up. If the phase sequence is wrong, the red LED flashes and the output relay remains in its rest position. If a phase fails, the red LED is permanently lit and the output relay drops.

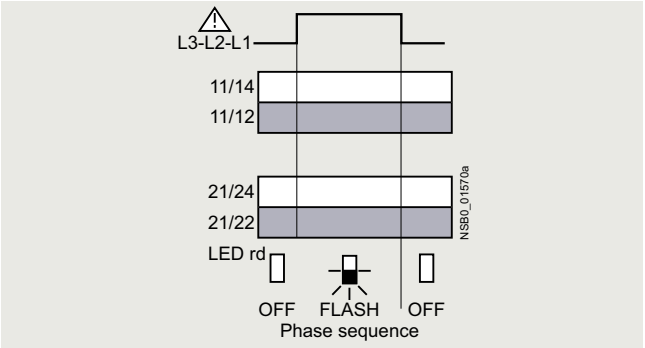
Note:

The red LED is a fault diagnostic indicator and does not show the current relay status. The 3UG4513 monitoring relay is suitable for line frequencies of 50/60 Hz.

Phase failure and undervoltage




Wrong phase sequence

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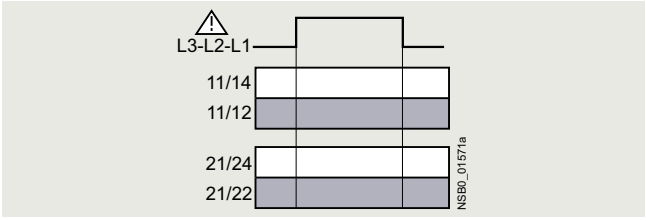
### *3UG4614 monitoring relays*

The 3UG4614 line monitoring relay has a wide voltage range input and an internal power supply. The device is equipped with a display and is parameterized using three buttons. The unit monitors 3-phase networks with regard to phase asymmetry from 5 to 20%, phase failure, undervoltage and phase sequence. The hysteresis is adjustable from 1 to 20 V. In addition the device has a response delay and ON-delay from 0 to 20 s in each case. The response delay time responds to phase asymmetry and undervoltage. If the direction is incorrect, the device switches off immediately. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V and feedback through the load of up to 80%.

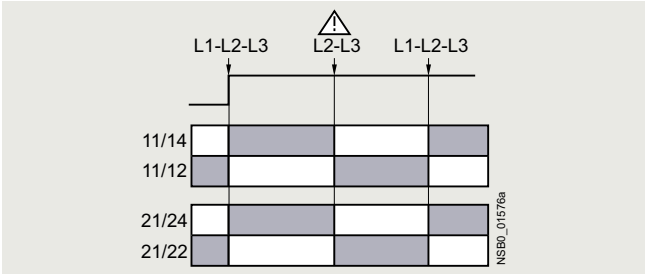
The 3UG4614 monitoring relay can be operated on the basis of either the open-circuit or closed-circuit principle and with Manual or Auto RESET.

With the closed-circuit principle selected

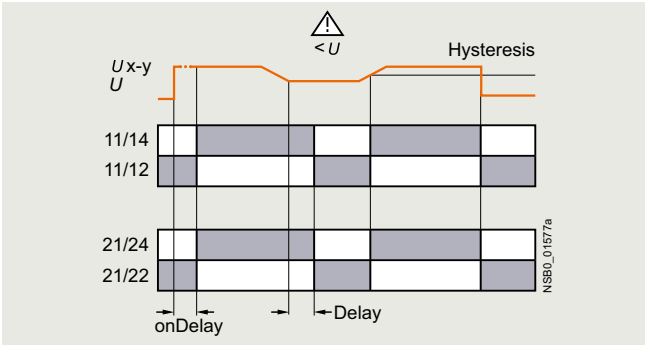
Wrong phase sequence



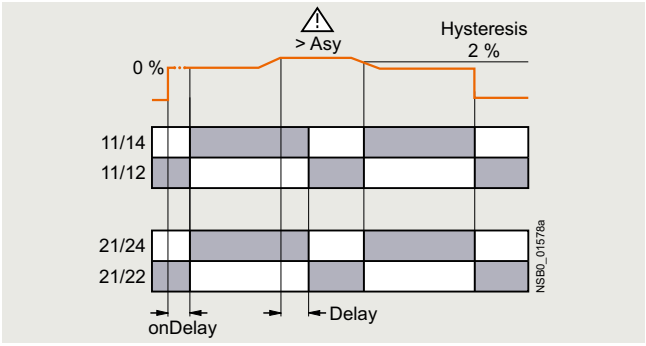

Phase failure




Undervoltage




Asymmetry



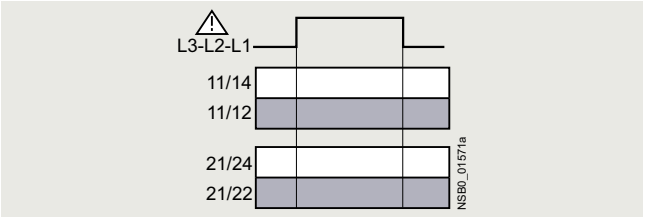

### *3UG4615/3UG4616 monitoring relays*

The 3UG4615/3UG4616 line monitoring relay has a wide voltage range input and an internal power supply. The device is equipped with a display and is parameterized using three buttons. The 3UG4615 device monitors 3-phase networks with regard to phase failure, undervoltage, overvoltage and phase sequence. The 3UG4616 monitoring relay monitors the neutral conductor as well. The hysteresis is adjustable from 1 to 20 V. In addition the device has two separately adjustable delay times for overvoltage and undervoltage from 0 to 20 s in each case. If the direction of rotation is incorrect, the device switches off immediately. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V and feedback through the load of up to 80%.

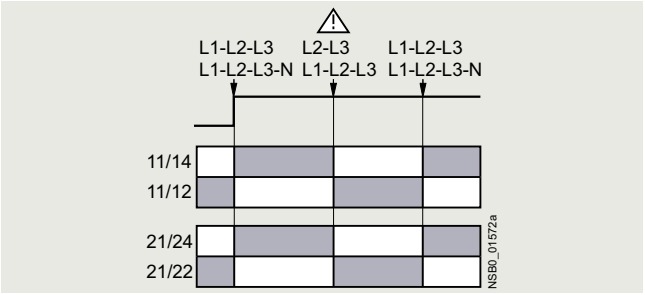
The 3UG4615/3UG4616 monitoring relay can be operated on the basis of either the open-circuit or closed-circuit principle and with Manual or Auto RESET.

With the closed-circuit principle selected

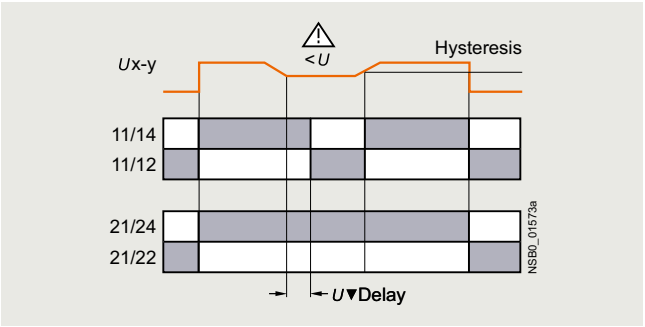
Wrong phase sequence



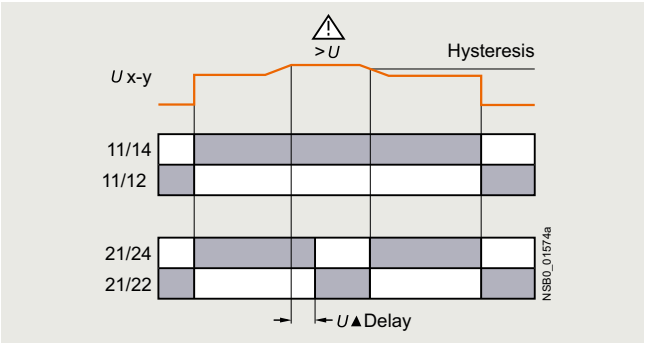

Phase failure




Undervoltage




Overvoltage

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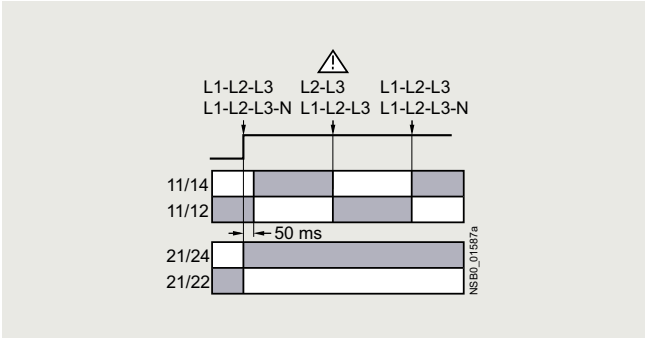
## Line monitoring

### *3UG4617/3UG4618 monitoring relays*

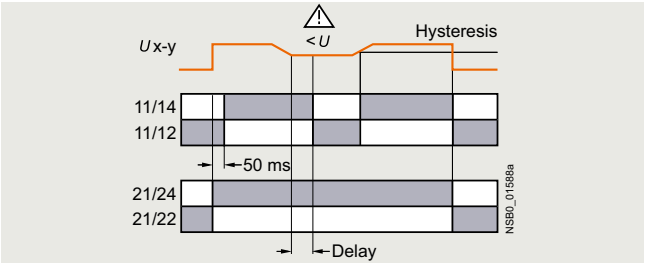
The 3UG4617/3UG4618 line monitoring relay has an internal power supply and can automatically correct a wrong direction of rotation. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from 160 to 690 V AC and feedback through the load of up to 80%. The device is equipped with a display and is parameterized using three buttons. The 3UG4617 line monitoring relay unit monitors 3-phase networks with regard to phase sequence, phase failure, phase asymmetry, undervoltage and overvoltage. The 3UG4618 monitoring relay monitors the neutral conductor as well. The hysteresis is adjustable from 1 to 20 V. In addition the device has delay times from 0 to 20 s in each case for overvoltage, undervoltage, phase failure and phase asymmetry. The 3UG4617/3UG4618 monitoring relay can be operated on the basis of either the open-circuit or closed-circuit principle and with Manual or Auto RESET. The one changeover contact is used for warning or disconnection in the event of power system faults (voltage, asymmetry), the other responds only to a wrong phase sequence. In conjunction with a contactor reversing assembly it is thus possible to change the direction automatically.

With the closed-circuit principle selected

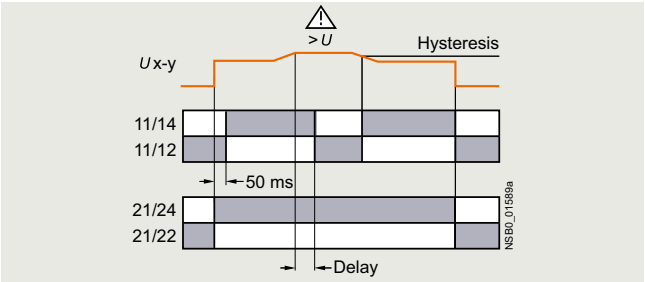
Phase failure



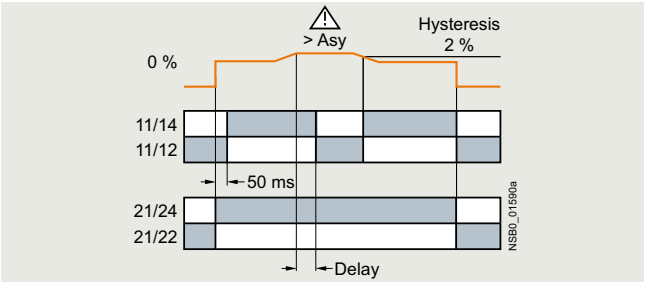

Undervoltage




Overvoltage




Asymmetry




| Type | | 3UG4511 ... 3UG4513, 3UG4614 ... 3UG4618 |
|---|---|---|
| **General data** | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 3<br>Overvoltage category III according to VDE 0110 | V | 690 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Control circuit** | | |
| **Load capacity of the output relay**<br>• Thermal current $I_{th}$ | A | 5 |
| **Rated operational current $I_e$ at**<br>• AC-15/24 ... 400 V<br>• DC-13/24 V<br>• DC-13/125 V<br>• DC-13/250 V | <br>A<br>A<br>A<br>A | <br>3<br>1<br>0.2<br>0.1 |
| **Minimum contact load** at 17 V DC | mA | 5 |
| **Electrical endurance AC-15** | million operating cycles | 0.1 |
| **Mechanical endurance** | million operating cycles | 10 |

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## Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4511-1AP20

3UG4615-1CR20

3UG4616-1CR20

3UG4617-1CR20

3UG4618-1CR20

3UG4511-2BP20

3UG4512-2BR20

| Adjustable hysteresis | Under-voltage detec-tion | Over-voltage detec-tion | Stabiliza-tion time adjust-able stDEL | Tripping delay time adjustable Del | Version of auxil-iary con-tacts | Measurable line voltage[1] | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | s | s | CO contact | V | Article No. | Price per PU | Article No. | Price per PU |
| **Monitoring of phase sequence** | | | | | | | | | | |
| Auto RESET | | | | | | | | | | |
| -- | -- | -- | -- | -- | 1<br>2 | 160 … 260 AC | **3UG4511-1AN20**<br>**3UG4511-1BN20** | | **3UG4511-2AN20**<br>**3UG4511-2BN20** | |
| | | | | | 1<br>2 | 320 … 500 AC | **3UG4511-1AP20**<br>**3UG4511-1BP20** | | **3UG4511-2AP20**<br>**3UG4511-2BP20** | |
| | | | | | 1<br>2 | 420 … 690 AC | **3UG4511-1AQ20**<br>**3UG4511-1BQ20** | | **3UG4511-2AQ20**<br>**3UG4511-2BQ20** | |
| **Monitoring of phase sequence, phase failure and phase asymmetry** | | | | | | | | | | |
| Auto RESET, closed-circuit principle, asymmetry threshold permanently 10% | | | | | | | | | | |
| -- | -- | -- | -- | -- | 1<br>2 | 160 … 690 AC | **3UG4512-1AR20**<br>**3UG4512-1BR20** | | **3UG4512-2AR20**<br>**3UG4512-2BR20** | |
| **Monitoring of phase sequence, phase failure, asymmetry and undervoltage** | | | | | | | | | | |
| Analogically adjustable, Auto RESET, closed-circuit principle, asymmetry and undervoltage threshold permanently 20% | | | | | | | | | | |
| 5% of set value | ✓ | -- | -- | 0.1 … 20 | 2 | 160 … 690 AC | **3UG4513-1BR20** | | **3UG4513-2BR20** | |
| Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle, asymmetry threshold 0 or 5 ... 20% | | | | | | | | | | |
| Adjustable 1 ... 20 V | ✓ | -- | 0.1 ... 20 | 0.1 … 20 | 2 | 160 … 690 AC | **3UG4614-1BR20** | | **3UG4614-2BR20** | |
| **Monitoring of phase sequence, phase failure, overvoltage and undervoltage** | | | | | | | | | | |
| Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle | | | | | | | | | | |
| Adjustable 1 ... 20 V | ✓ | ✓ | -- | 0.1 … 20[2] | 2[2] | 160 … 690 AC | **3UG4615-1CR20** | | **3UG4615-2CR20** | |
| **Monitoring of phase sequence, phase and N conductor failure, overvoltage and undervoltage** | | | | | | | | | | |
| Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle | | | | | | | | | | |
| Adjustable 1 ... 20 V | ✓ | ✓ | -- | 0.1 … 20[2] | 2[2] | 90 … 400 AC to N | **3UG4616-1CR20** | | **3UG4616-2CR20** | |
| **Automatic correction of the direction of rotation in case of wrong phase sequence, phase failure, asymmetry, overvoltage and undervoltage** | | | | | | | | | | |
| Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle, asymmetry threshold 0 or 5 ... 20% | | | | | | | | | | |
| Adjustable 1 ... 20 V | ✓ | ✓ | -- | 0.1 … 20 | 2[3] | 160 … 690 AC | **3UG4617-1CR20** | | **3UG4617-2CR20** | |
| **Automatic correction of the direction of rotation in case of wrong phase sequence, phase and N conductor failure, phase asymmetry, overvoltage and undervoltage** | | | | | | | | | | |
| Digitally adjustable, Auto RESET or Manual RESET, open-circuit or closed-circuit principle, asymmetry threshold 0 or 5 ... 20% | | | | | | | | | | |
| Adjustable 1 ... 20 V | ✓ | ✓ | -- | 0.1 … 20 | 2[3] | 90 … 400 AC to N | **3UG4618-1CR20** | | **3UG4618-2CR20** | |

✓ Function available
-- Function not available

Accessories, see page 10/95.

1) Absolute limit values.
2) 1 CO contact each and one tripping delay time each for $U_{min}$ and $U_{max}$.
3) 1 CO contact each for power system fault and phase sequence correction.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Voltage monitoring

### Overview

SIRIUS 3UG4631 monitoring relay

The relays monitor 1-phase AC voltages (rms value) and DC voltages against the set threshold value for overshoot and undershoot. The devices differ with regard to their power supply (internal or external).

### Benefits

- Versions with wide voltage supply range
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Display of actual value and status messages
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

### Application

- Protection of a plant against destruction due to overvoltage
- Switch-on of a plant at a defined voltage and higher
- Protection from undervoltage due to overloaded supply voltages, particularly with battery power
- Threshold switch for analog signals from 0.1 to 10 V

### Technical specifications

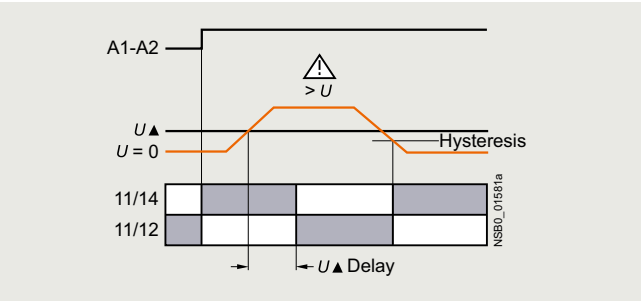
***3UG4631/3UG4632 monitoring relays***

The 3UG4631/3UG4632 voltage monitoring relay is supplied with an auxiliary voltage of 24 V AC/DC or 24 to 240 V AC/DC and performs overshoot, undershoot or range monitoring of the voltage depending on parameterization. The device is equipped with a display and is parameterized using three buttons.

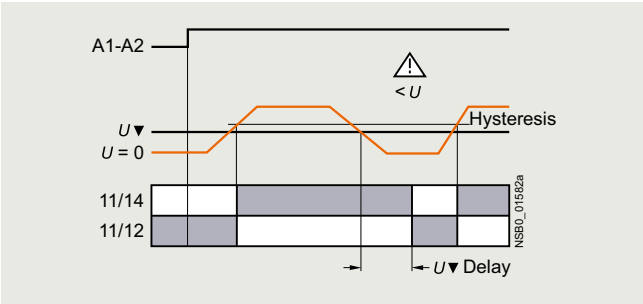
The measuring range extends from 0.1 to 60 V or 10 to 600 V AC/DC. The threshold values for overshoot or undershoot can be freely configured within this range. If one of these threshold values is reached, the output relay responds according to the set principle of operation as soon as the delay time has elapsed. This delay time $U_{Del}$ can be set from 0.1 to 20 s.
The hysteresis can be set from 0.1 to 30 V or 0.1 to 300 V.
The device can be operated on the basis of either the open-circuit or closed-circuit principle and with Manual or Auto RESET.
One output changeover contact is available as signaling contact.

With the closed-circuit principle selected

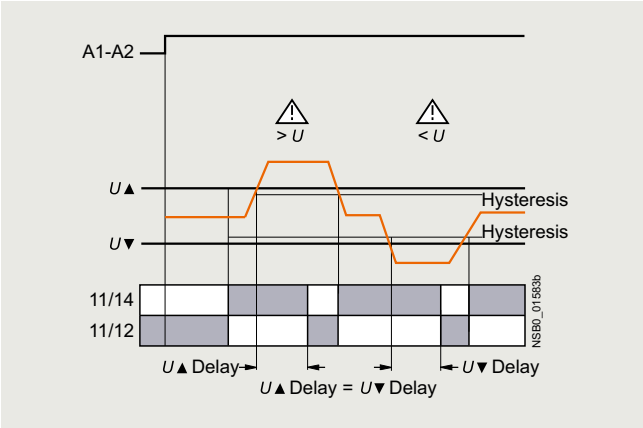
Overvoltage




Undervoltage




Range monitoring

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### *3UG4633 monitoring relay*

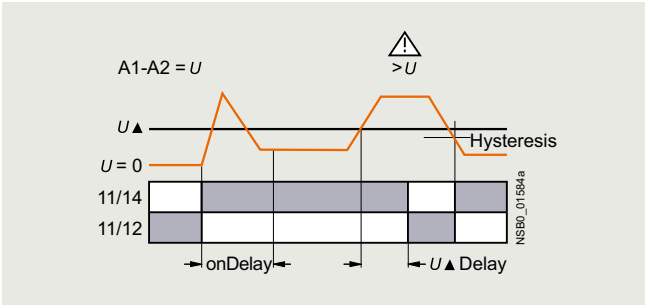
The 3UG4633 voltage monitoring relay has an internal power supply and performs overshoot, undershoot or range monitoring of the voltage depending on parameterization. The device is equipped with a display and is parameterized using three buttons.

The operating and measuring range extends from 17 to 275 V AC/DC. The threshold values for overshoot or undershoot can be freely configured within this range. If one of these threshold values is reached, the output relay responds according to the set principle of operation as soon as the tripping delay time has elapsed. This delay time $U_{Del}$ can also be adjusted, just like the ON-delay time $t_{onDel}$, from 0.1 to 20 s.

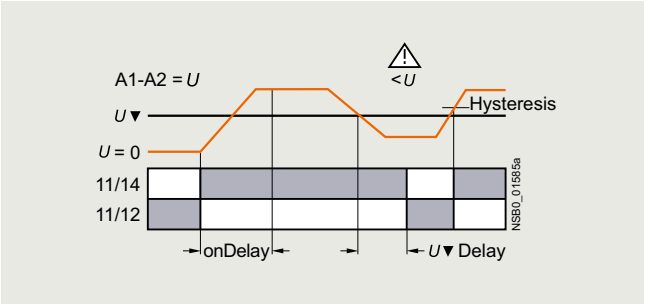
The hysteresis is adjustable from 0.1 to 150 V. The device can be operated on the basis of either the open-circuit or closed-circuit principle and with Manual or Auto RESET. One output changeover contact is available as signaling contact.

With the closed-circuit principle selected

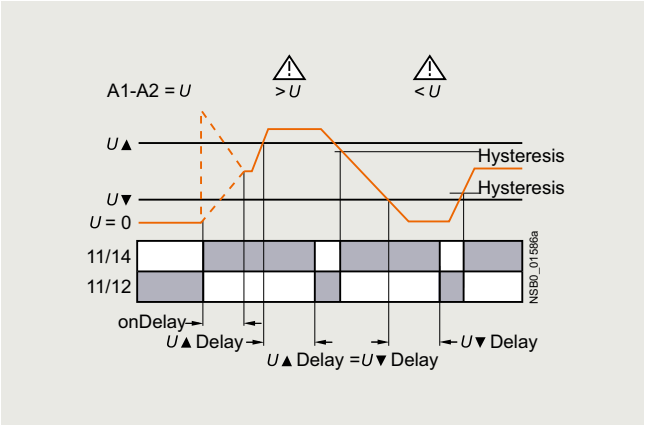
Overvoltage




Undervoltage




Range monitoring




| Type | | 3UG4631 | 3UG4632 | 3UG4633 |
|---|---|---|---|---|
| **General data** | | | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 3<br>Overvoltage category III according to VDE 0110 | V | 690 | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | | |
| **Measuring circuit** | | | | |
| **Permissible measuring range** 1-phase AC/DC voltage | V | 0.1 ... 60 | 10 ... 650 | 17 ... 275 |
| **Measuring frequency** | Hz | 40 ... 500 | | |
| **Setting range** 1-phase voltage | V | 0.1 ... 60 | 10 ... 600 | 17 ... 275 |
| **Control circuit** | | | | |
| **Load capacity of the output relay**<br>• Thermal current $I_{th}$ | A | 5 | | |
| **Rated operational current $I_e$ at**<br>• AC-15/24 ... 400 V<br>• DC-13/24 V<br>• DC-13/125 V<br>• DC-13/250 V | <br>A<br>A<br>A<br>A | <br>3<br>1<br>0.2<br>0.1 | | |
| **Minimum contact load** at 17 V DC | mA | 5 | | |

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## Voltage monitoring

### Selection and ordering data

- Digitally adjustable, with illuminated LCD
- Auto or Manual RESET
- Open-circuit or closed-circuit principle
- 1 CO contact

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4631-1AA30

3UG4633-2AL30

| Measuring range | Adjustable hysteresis | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|
| | | | Article No. | Price per PU | Article No. | Price per PU |
| V | V | V | | | | |
| **Internal power supply without auxiliary voltage, separately adjustable ON-delay and tripping delay 0.1 ... 20 s** | | | | | | |
| 17 ... 275 AC/DC | 0.1 ... 150 | 17 ... 275 AC/DC[1] | **3UG4633-1AL30** | | **3UG4633-2AL30** | |
| **Externally supplied with auxiliary voltage, tripping delay adjustable 0.1 ... 20 s** | | | | | | |
| 0.1 ... 60 AC/DC<br>10 ... 600 AC/DC | 0.1 ... 30<br>0.1 ... 300 | 24 AC/DC | **3UG4631-1AA30**<br>**3UG4632-1AA30** | | **3UG4631-2AA30**<br>**3UG4632-2AA30** | |
| 0.1 ... 60 AC/DC<br>10 ... 600 AC/DC | 0.1 ... 30<br>0.1 ... 300 | 24 ... 240 AC/DC | **3UG4631-1AW30**<br>**3UG4632-1AW30** | | **3UG4631-2AW30**<br>**3UG4632-2AW30** | |

[1] Absolute limit values.

Accessories, see page 10/95.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

SIRIUS 3UG4622 monitoring relay

The relays monitor 1-phase AC currents (rms value) and DC currents against the set threshold value for overshoot and undershoot. They differ with regard to their measuring ranges and control supply voltage types.

## Benefits

- Versions with wide voltage supply range
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Display of actual value and status messages
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

## Application

- Overcurrent and undercurrent monitoring
- Monitoring the functionality of electrical loads
- Open-circuit monitoring
- Threshold switch for analog signals from 4 to 20 mA

## Technical specifications

### *3UG4621/3UG4622 monitoring relays*

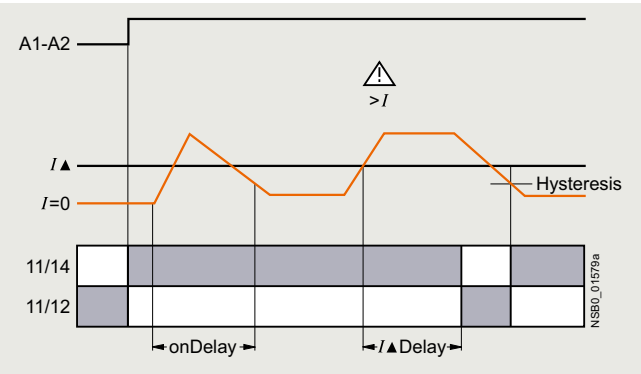
The 3UG4621 or 3UG4622 current monitoring relay is supplied with an auxiliary voltage of 24 V AC/DC or 24 to 240 V AC/DC and performs overshoot, undershoot or range monitoring of the current depending on parameterization. The device is equipped with a display and is parameterized using three buttons.

The measuring range extends from 3 to 500 mA or 0.05 to 10 A. The rms value of the current is measured. The threshold values for overshoot or undershoot can be freely configured within this range. If one of these threshold values is reached, the output relay responds according to the set principle of operation as soon as the tripping delay time $I_{Del}$ has elapsed. This time and the ON-delay time $t_{onDel}$ are adjustable from 0.1 to 20 s.

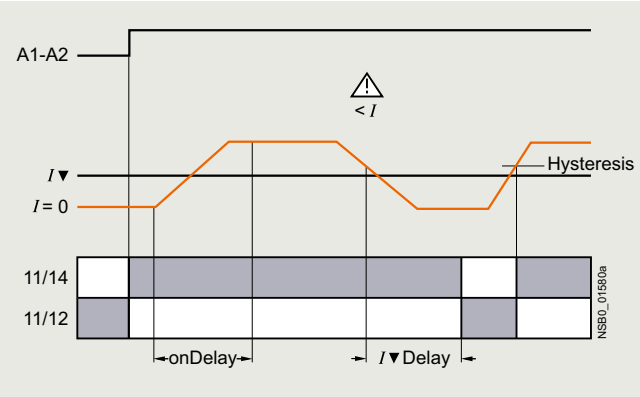
The hysteresis is adjustable from 0.1 to 250 mA or 0.01 to 5 A. The device can be operated with Manual or Auto RESET and on the basis of either the open-circuit or closed-circuit principle. You can decide here whether the output relay is to respond when the supply voltage $U_S$ = ON is applied, or not until the lower measuring range limit of the measuring current ($I$ > 3 mA/50 mA) is reached. One output changeover contact is available as signaling contact.

With the closed-circuit principle selected
upon application of the control supply voltage

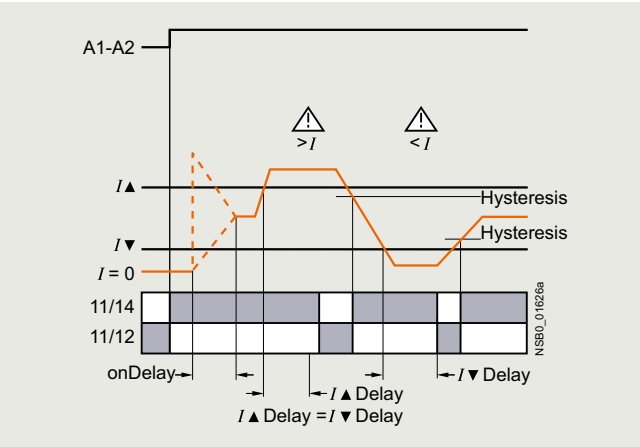
Current overshoot




Current undershoot




Range monitoring




10

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## Current monitoring

| Type | | 3UG4621-.AA | 3UG4621-.AW | 3UG4622-.AA | 3UG4622-.AW |
|---|---|---|---|---|---|
| **General data** | | | | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 3; overvoltage category III according to VDE 0110 | V | 690 | | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | | | |
| **Measuring circuit** | | | | | |
| **Measuring range for 1-phase AC/DC current** | A | 0.003 … 0.6 | | 0.05 … 15 | |
| **Measuring frequency** | Hz | 40 ... 500 | | | |
| **Setting range for 1-phase current** | A | 0.003 ... 0.5 | | 0.05 ... 10 | |
| **Load supply voltage** | V | 24 | Max. 300[1]<br>Max. 500[2] | 24 | Max. 300[1]<br>Max. 500[2] |
| **Control circuit** | | | | | |
| **Load capacity of the output relay**<br>• Thermal current $I_{th}$ | A | 5 | | | |
| **Rated operational current $I_e$ at**<br>• AC-15/24 ... 400 V<br>• DC-13/24 V<br>• DC-13/125 V<br>• DC-13/250 V | <br>A<br>A<br>A<br>A | <br>3<br>1<br>0.2<br>0.1 | | | |
| **Minimum contact load** at 17 V DC | mA | 5 | | | |

1) With protective separation.

2) With simple separation.

## Selection and ordering data

- Digitally adjustable, with illuminated LCD
- Auto or Manual RESET
- Open-circuit or closed-circuit principle
- 1 CO contact

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4621-1AA30

3UG4622-2AW30

| Measuring range | Adjustable hysteresis | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|
| | | | Article No. | Price per PU | Article No. | Price per PU |
| | | V | | | | |
| **Monitoring of undercurrent and overcurrent, startup delay and tripping delay times can be adjusted separately 0.1 ... 20 s** | | | | | | |
| 3 … 500 mA AC/DC<br>0.05 … 10 A AC/DC | 0.1 ... 250 mA<br>0.01 ... 5 A | 24 AC/DC[1] | **3UG4621-1AA30**<br>**3UG4622-1AA30** | | **3UG4621-2AA30**<br>**3UG4622-2AA30** | |
| 3 … 500 mA AC/DC<br>0.05 … 10 A AC/DC | 0.1 ... 250 mA<br>0.01 ... 5 A | 24 ... 240 AC/DC[2] | **3UG4621-1AW30**<br>**3UG4622-1AW30** | | **3UG4621-2AW30**<br>**3UG4622-2AW30** | |

1) No electrical separation. Load supply voltage 24 V.

2) Electrical separation between control circuit and measuring circuit. Load supply voltage for protective separation max. 300 V, for simple separation max. 500 V.

Accessories, see page 10/95.

For AC currents $I$ > 10 A it is possible to use 4NC current transformers as an accessory, see Catalog LV 10.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

SIRIUS 3UG4641 monitoring relay

The 3UG4641 power factor and active current monitoring device enables load monitoring of motors.

Whereas power factor (p.f.) monitoring is used above all for monitoring no-load operation, the active current monitoring option can be used to observe and evaluate the load factor over the entire torque range.

## Benefits

- Can be used worldwide thanks to wide voltage range from 90 to 690 V (absolute limit values)
- Monitoring of even small 1-phase motors with a no-load supply current below 0.5 A
- Simple determination of threshold values by directly referencing measured variables to motor loading
- Range monitoring and active current measurement enable detection of cable breaks between control cabinets and motors, as well as phase failures
- Power factor (p.f.) or $I_{res}$ (active current) can be selected as the measurement principle
- Width 22.5 mm
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

## Application

- No-load monitoring and load shedding, such as in the event of a V-belt tear
- Underload monitoring in the low-end performance range, e.g. in the event of pump no-load operation
- Monitoring of overload, e.g. due to a dirty filter system
- Simple power factor monitoring in power systems for control of compensation equipment
- Broken cable between control cabinet and motor

## Technical specifications

### *3UG4641 monitoring relays*

The 3UG4641 monitoring relay is self-powered and serves the 1-phase monitoring of the power factor or performs overshoot, undershoot or range monitoring of the active current depending on how it is parameterized. The load to be monitored is connected upstream of the IN terminal. The load current flows through the terminals IN and Ly/N. The setting range for the power factor is 0.1 to 0.99 and for the active current $I_{res}$ it is 0.2 to 10 A. If the control supply voltage is switched on and no load current flows, the display will show $I$ < 0.2 A and a symbol for overshoot, undershoot or range monitoring. If the motor is now switched on and the current exceeds 0.2 A, the set ON-delay time begins. During this time, if the set limit values are undershot or exceeded, this does not lead to a relay reaction of the changeover contact. If the operational flowing active current and/or the power factor value falls below or exceeds the respective set threshold value, the spike delay begins. When this time has expired, the relay changes its switch position. The relevant measured variables for overshooting and undershooting in the display flash. If monitoring for active current undershoot is switched off ($I_{res}$▼= OFF), and if the load current undershoots the lower measuring range threshold (0.2 A), the CO contacts remain unchanged.
If a threshold value is set for the monitoring of active current undershooting, then undershooting of the measuring range threshold (0.2 A) will result in a response of the CO contacts.

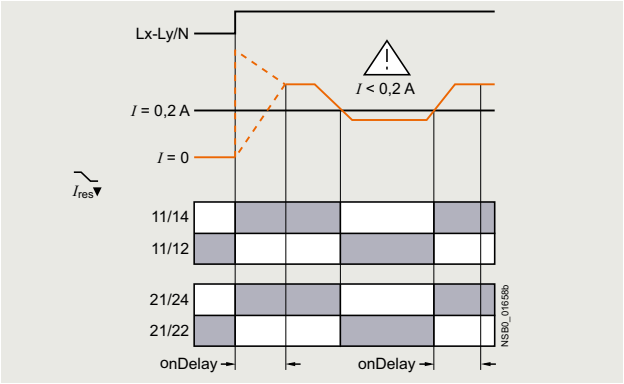
The relay operates either according to the open-circuit or closed-circuit principle. If the device is set to Auto RESET (Memory = No), depending on the set principle of operation, the switching relay returns to its initial state and the flashing ends when the hysteresis threshold is reached.

If Manual RESET is selected in the menu (Memory = Yes), the switching relay remains in its current switching state and the current measured value and the symbol for undershooting and overshooting continue to flash, even when the measured variable reaches a permissible value again. This stored fault status can be reset by simultaneously pressing the UP▲ and DOWN▼ keys for 2 seconds, or by switching the supply voltage off and back on again.

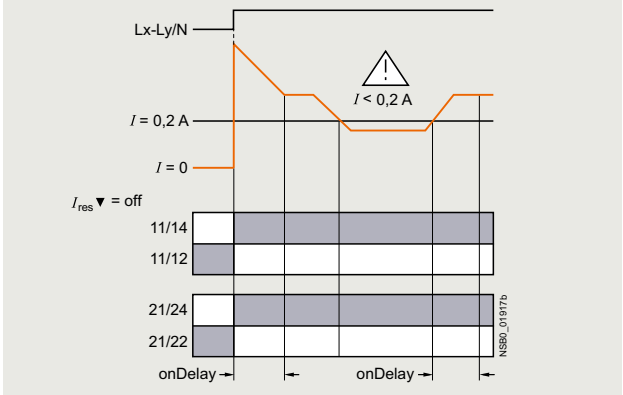
<u>With the closed-circuit principle selected</u>

Response in the event of undershooting the measuring range limit

- With activated monitoring of $I_{res}$▼




- With deactivated monitoring of active current undershooting




10

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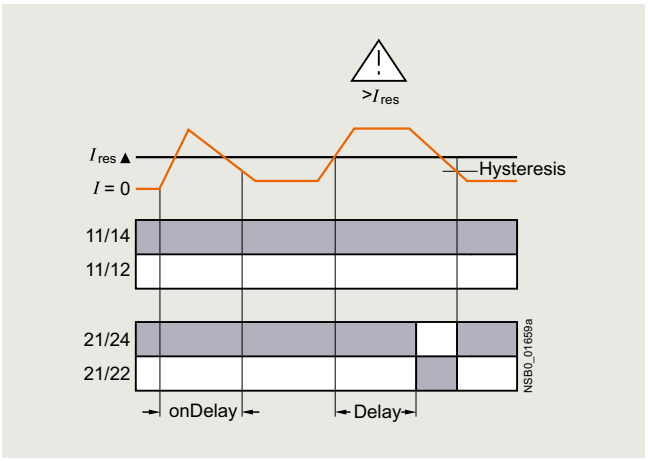
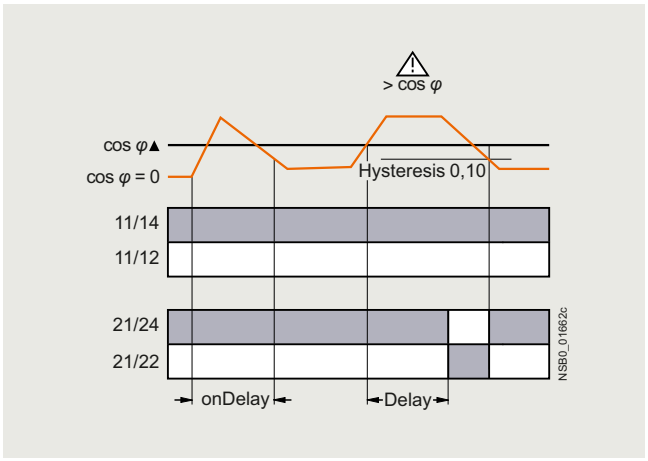
## Power factor and active current monitoring

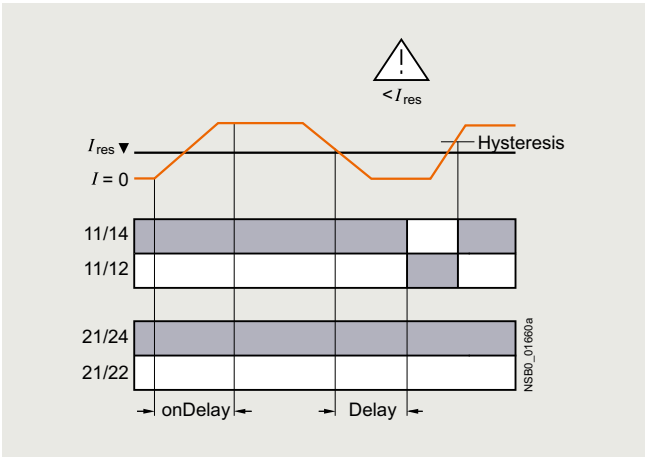
Overshooting of active current



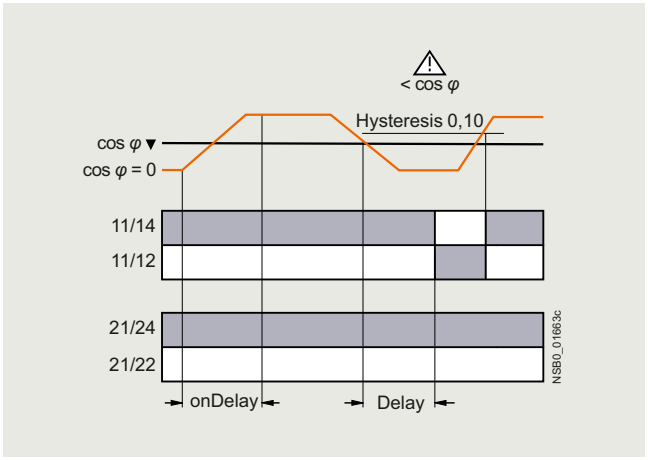

Overshooting of power factor



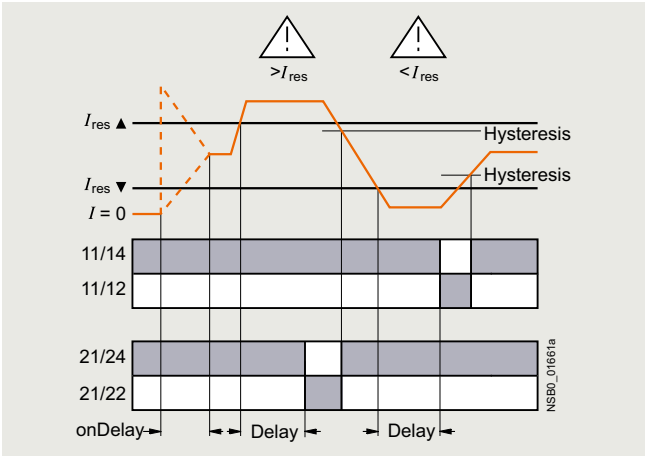

Undershooting of active current



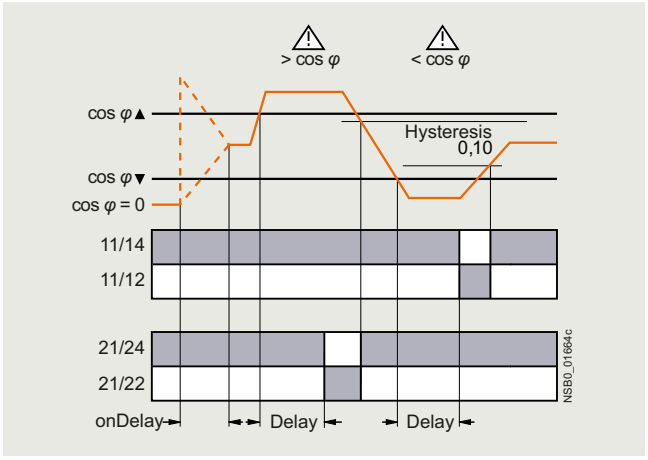

Undershooting of power factor




Range monitoring of active current




Range monitoring of power factor



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| Type | | 3UG4641 |
|---|---|---|
| **General data** | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 3<br>Overvoltage category III according to VDE 0110 | V | 690 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Control circuit** | | |
| **Number of CO contacts for auxiliary contacts** | | 2 |
| **Load capacity of the output relay**<br>• Thermal current $I_{th}$ | A | 5 |
| **Rated operational current $I_e$ at**<br>• AC-15/24 ... 400 V<br>• DC-13/24 V<br>• DC-13/125 V<br>• DC-13/250 V | <br>A<br>A<br>A<br>A | <br>3<br>1<br>0.2<br>0.1 |
| **Minimum contact load** at 17 V DC | mA | 5 |

## Selection and ordering data

- For monitoring the power factor and the active current $I_{res}$ (p.f. x $I$)
- Suitable for 1-phase and 3-phase currents
- Digitally adjustable, with illuminated LCD
- Overshoot, undershoot or range monitoring adjustable
- Upper and lower threshold value can be adjusted separately
- Permanent display of actual value and tripping state
- 1 changeover contact each for undershoot/overshoot

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

| Measuring range | | Adjustable hysteresis | | ON-delay time adjustable onDel | Tripping delay time adjustable /▲Del/ /▼Del, φ▲Del/ φ▼Del | Rated control supply voltage $U_s$ [1] 50/60 Hz AC | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| for power factor | for active current $I_{res}$ | for power factor | for active current $I_{res}$ | | | | Article No. | Price per PU | Article No. | Price per PU |
| P.f. | A | P.f. | A | s | s | V | | | | |
| 0.10 ... 0.99 | 0.2 ... 10.0 | 0.1 | 0.1 ... 2.0 | 0 ... 99 | 0.1 ... 20.0 | 90 ... 690 | **3UG4641-1CS20** | | **3UG4641-2CS20** | |

[1] Absolute limit values.

Accessories, see page 10/95.

For AC active currents $I_{res}$ > 10 A it is possible to use 4NC current transformers as an accessory, see Catalog LV 10.

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## Overview

SIRIUS 3UG4625 monitoring relay

The 3UG4625 residual-current monitoring relays are used in conjunction with the 3UL23 residual-current transformers for monitoring plants in which higher residual currents are increasingly expected due to ambient conditions. Monitoring encompasses pure AC residual currents or AC residual currents with a pulsating DC fault current component (transformer, type A in accordance with DIN VDE 0100-530/IEC TR 60755).

## Benefits

- Worldwide use thanks to wide voltage range from 24 to 240 V AC/DC
- High measuring accuracy of ±7.5%
- Permanent self-monitoring
- Variable threshold values for warning and disconnection
- Freely configurable delay times and RESET response
- Permanent display of the actual value and fault diagnostics via the display
- High level of flexibility and space saving through installation of the transformer inside or outside the control cabinet
- Width 22.5 mm
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

## Application

Monitoring of plants in which residual currents can occur, e.g. due to dust deposits or moisture, porous cables and leads, or capacitive residual currents.

## Technical specifications

***3UG4625 monitoring relays***

The main conductor, and any neutral conductor to which a load is connected, are routed through the opening of the toroidal core of a residual-current transformer. A secondary winding is placed around this toroidal core to which the monitoring relay is connected.

If operation of a plant is fault-free, the sum of the inflowing and outward currents equals zero. No current is then induced in the secondary winding of the residual-current transformer.

However, if an insulation fault occurs, the sum of the inflowing currents is greater than that of the outward currents. The differential current – i.e. the residual current – induces a secondary current in the secondary winding of the transformer. This current is evaluated in the monitoring relay and is used on the one hand to display the actual residual current and on the other, to switch the relay if the set warning or tripping threshold is overshot.

If the measured residual current exceeds the set warning value, the associated changeover contact instantly changes the switching state and an indication appears on the display.

If the measured residual current exceeds the set tripping value, the set delay time begins and the associated relay symbol flashes. On expiry of this time, the associated changeover contact changes the switching state.

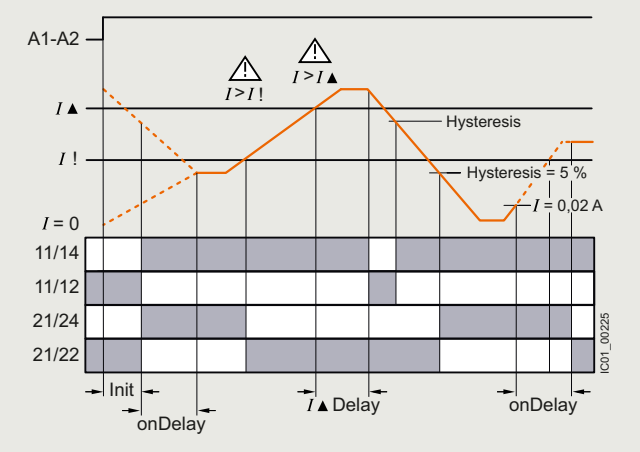
ON-delay time for motor start

To be able to start a drive when a residual current is detected, the output relays switch to the OK state for an adjustable ON-delay time depending on the selected open-circuit principle or closed-circuit principle.

The changeover contacts do not react if the set threshold values are overshot during this period.

With the closed-circuit principle selected

Residual-current monitoring with Auto RESET (Memory = no)




If the device is set to Auto RESET, the relay switches back to the OK state for the tripping value after tripping once the value falls below the set hysteresis threshold and the display stops flashing.

The associated relay changes its switching state if the value falls below the fixed hysteresis value of 5% of the set warning value.

Any overshoots are therefore not stored.

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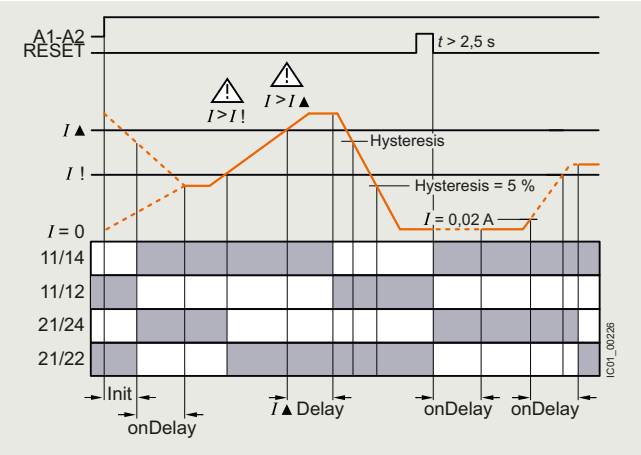
Residual-current monitoring with Manual RESET (Memory = yes)




If Manual RESET is selected in the menu, the output relays remain in their current switching state and the current measured value and the symbol for overshooting continue to flash, even when the measured residual current returns to a permissible value. This stored fault status can be reset by simultaneously pressing the UP▲ and DOWN▼ keys for > 2 seconds, or by switching the supply voltage off and back on again.

Note:

Do not ground the neutral conductor downstream of the residual-current transformer as otherwise residual current monitoring functions can no longer be ensured.

| **Type** | | **3UG4625-1CW30, 3UG4625-2CW30** |
|---|---|---|
| **General data** | | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3, rated value** | V | 300 |
| **Impulse withstand voltage, rated value $U_{imp}$** | kV | 4 |
| **Control circuit** | | |
| **Number of CO contacts for auxiliary contacts** | | 2 |
| **Thermal current of the non-solid-state contact blocks, maximum** | A | 5 |
| **Current-carrying capacity of the output relay** | | |
| • At AC-15 at 250 V at 50/60 Hz | A | 3 |
| • At DC-13 | | |
| - At 24 V | A | 1 |
| - At 125 V | A | 0.2 |
| - At 250 V | A | 0.1 |
| **Operational current at 17 V, minimum** | mA | 5 |

## Selection and ordering data

- For monitoring residual currents from 0.03 to 40 A, from 16 to 400 Hz
- For 3UL23 residual-current transformers with feed-through opening from 35 to 210 mm
- Permanent self-monitoring
- Certified in accordance with IEC 60947, functionality corresponds to IEC 62020
- Digitally adjustable, with illuminated LCD
- Permanent display of actual value and tripping state
- Separately adjustable limit value and warning threshold
- 1 changeover contact each for warning threshold and tripping threshold

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4625-1CW30

3UG4625-2CW30

| Measurable current | Adjustable response value current | Switching hysteresis | Adjustable ON-delay time | Control supply voltage | | | **Screw terminals** | **Spring-loaded terminals** |
|---|---|---|---|---|---|---|---|---|
| | | | | at AC at 50 Hz, rated value | at AC at 60 Hz, rated value | at DC, rated value | Article No. / Price per PU | Article No. / Price per PU |
| A | A | % | s | V | V | V | | |
| 0.01 ... 43 | 0.03 ... 40 | 0 ... 50 | 0 ... 20 | 24 ... 240 | 24 ... 240 | 24 ... 240 | **3UG4625-1CW30** | **3UG4625-2CW30** |

Accessories, see page 10/95.

For the 3UL23 residual-current transformers, see page 10/84.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

SIRIUS 3UL23 residual-current transformer

The 3UL23 residual-current transformers detect residual currents in machines and plants. They are suitable for pure AC residual currents or AC residual currents with a pulsating DC fault current component (transformer, type A in accordance with DIN VDE 0100-530/IEC TR 60755).

Together with the 3UG4625, 3UG4825 residual-current monitoring relays for IO-Link or the SIMOCODE 3UF motor management and control device they enable residual-current and ground-fault monitoring.

The 3UL2302-1A and 3UL2303-1A residual-current transformers with a feed-through opening from 35 to 55 mm can be mounted in conjunction with the 3UL2900 accessories on a TH 35 DIN-rail according to IEC 60715.

## Selection and ordering data

| Diameter of the bushing opening | Connectable cross-section of the connecting terminal | **Screw terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| mm | $mm^2$ | Article No. / Price per PU | | | |
| **Residual-current transformers (essential accessories for 3UG4625, 3UG4825)** | | | | | |
| 35 | 2.5 | **3UL2302-1A** | 1 | 1 unit | 41H |
| 55 | 2.5 | **3UL2303-1A** | 1 | 1 unit | 41H |
| 80 | 2.5 | **3UL2304-1A** | 1 | 1 unit | 41H |
| 110 | 2.5 | **3UL2305-1A** | 1 | 1 unit | 41H |
| 140 | 2.5 | **3UL2306-1A** | 1 | 1 unit | 41H |
| 210 | 4 | **3UL2307-1A** | 1 | 1 unit | 41H |

## Accessories

| Version | Article No. / Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|
| **Adapters** | | | | |
| **Adapters**<br>For mounting on DIN-rail for 3UL23 to diameter 55 mm | **3UL2900** | 1 | 2 units | 41H |

3UL2900



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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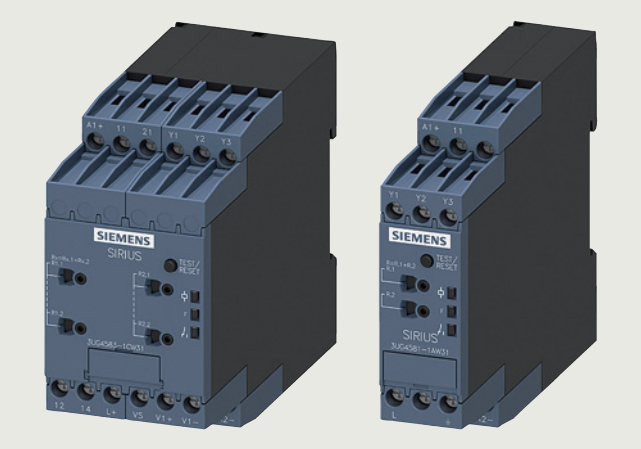
## Overview




SIRIUS 3UG458 insulation monitor

Insulation monitoring relays are used for monitoring the insulation resistance between ungrounded 1-phase or 3-phase AC supplies and a protective conductor.

Ungrounded, i.e. isolated networks (IT networks) are always used where high demands are placed on the reliability of the power supply, e.g. emergency lighting systems. IT systems are supplied via an isolating transformer or by power supply sources such as batteries or a generator. While an initial insulation fault between a phase conductor and the ground effectively grounds the conductor, as a result no circuit has been closed, so it is possible to continue work in safety (single-fault safety). However, the fault must be rectified as quickly as possible before a second insulation fault occurs (e.g. according to DIN VDE 0100-410). For this purpose insulation monitoring relays are used, which constantly measure the resistance to ground of the phase conductor and the neutral conductor, reporting a fault immediately if insulation resistance falls below the set value so that either a controlled shutdown can be performed or the fault can be rectified without interrupting the power supply.

***Two device series***

- 3UG4581 insulation monitoring relays for ungrounded AC networks
- 3UG4582 and 3UG4583 insulation monitoring relays for ungrounded DC and AC networks

Insulation monitoring for ungrounded AC networks

The 3UG4581 insulation monitoring relays are used to monitor insulation resistance according to IEC 61557-8 in ungrounded AC networks with rated voltages of up to 400 V.

These devices can monitor control circuits (1-phase) and main circuits (3-phase).

They measure insulation resistances between system cables and system ground. If the value falls below the threshold value, the output relays are switched to fault status.

In the case of 3UG4581 a higher-level DC measuring signal is used. The higher-level DC measuring signal and the resulting current are used to determine the value of the insulation resistance of the network which is to be measured.

Insulation monitoring relay for ungrounded DC and AC networks

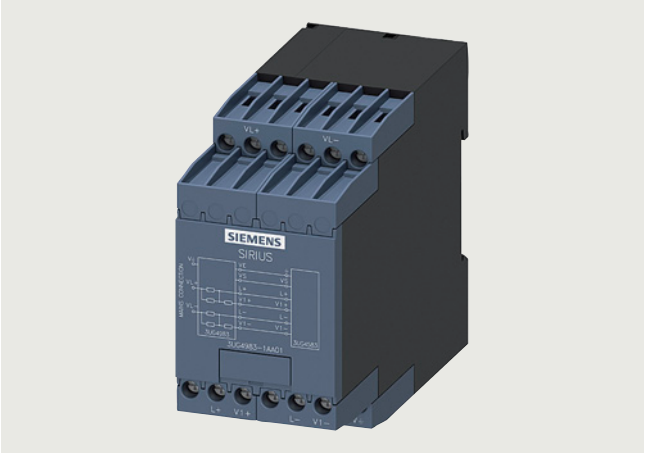
The 3UG4582 and 3UG4583 insulation monitoring relays are used to monitor insulation resistance in ungrounded IT AC or DC networks according to IEC 61557-8.

They measure insulation resistances between system cables and system ground. If the value falls below the threshold value, the output relays are switched to fault status. With these monitoring relays, which are suitable for both AC and DC networks, a pulsed test signal is fed into the network to be monitored and the insulation resistance is determined.

The pulsed test signal changes its form according to insulation resistance and network loss capacitance. The changed form is used to predict the changed insulation resistance.

If the predicted insulation resistance matches the insulation resistance calculated in the next measurement cycle, and is lower than the threshold value, the output relays are activated or deactivated, depending on the device configuration. This measurement principle is also suitable for identifying symmetrical insulation faults.

3UG4983 voltage reducer module




3UG4983 voltage reducer module

The 3UG4983-.AA01 voltage reducer module is available for the 3UG4583 insulation monitoring relay to extend the network voltage range to 690 V AC and 1000 V DC.

***Connection methods***

With the updated enclosure, future-proof push-in technology is available alongside the tried-and-trusted screw terminals.

Push-in is a form of spring-loaded connection system allowing wiring of terminals without tools. These terminals are self-adjusting, i.e. the regular tightening needed with screw terminals is not necessary.

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## Insulation monitoring

### Benefits

- Devices for AC and DC systems
- All devices have a wide control supply voltage range
- Direct connection to networks with mains voltages of up to 690 V AC and 1 000 V DC by means of a voltage reducer module
- For AC supply systems: Frequency range 15 to 400 Hz
- Monitoring of broken conductors
- Monitoring of setting errors
- Safety in use thanks to integrated system test after startup
- Option of resetting and testing (by means of button on front or using control contact)
- New predictive measurement principle allows very fast response times
- All versions with screw or spring-loaded terminals with push-in functionality

### Application

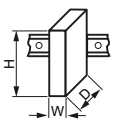
IT networks are used, for example:

- In emergency power supplies
- In safety lighting systems
- In industrial production facilities with high availability requirements (chemical industry, automobile manufacturing, printing plants)
- In shipping and railways
- For mobile generators (aircraft)
- For renewable energies, such as wind energy and photovoltaic power plants
- In the mining industry

### Technical specifications

**More information**

For equipment manuals, see
- https://support.industry.siemens.com/cs/ww/en/view/54382552
- https://support.industry.siemens.com/cs/ww/en/view/54382528

| Type | | 3UG4581-.AW31 | 3UG4582-.AW31 | 3UG4583-.CW31 | 3UG4983-.AA01 |
|---|---|---|---|---|---|
| **General data** | | | | | |
| Dimensions (W x H x D)   | mm | 22.5 x 78 x 100 | | 45 x 78 x 100 | |
| **Degree of protection IP on the front according to IEC 60529** | | IP20 | | | |
| **Mounting position** | | Any | | | |
| **Type of mounting** | | Snap-on mounting on 35 mm DIN-rail | | | |
| **Ambient temperature during operation** | °C | -25 ... +60 | | | |
| **Fault storage** | | ✓ | ✓ | ✓ | -- |
| **Measuring circuit** | | | | | |
| **Measurable voltage** | | | | | |
| • At DC | V | -- | 0 ... 300 | 0 ... 600 | 0 ... 1 000 |
| • At AC | V | 0 ... 400 | 0 ... 250 | 0 ... 400 | 0 ... 690 |
| **Measurable line frequency** | Hz | 50 ... 60 | | 15 ... 400 | |
| **Adjustable response value impedance** | | | | | |
| • 1 | kΩ | 1 ... 100 | | | -- |
| • 2 | kΩ | -- | | 2 ... 200 | -- |
| **System leakage capacitance** | µF | 10 | | 20 | |
| **Control circuit** | | | | | |
| **Control supply voltage** | | | | | |
| • At AC | | | | | |
| - At 50 Hz | V | 24 ... 240 | | | -- |
| - At 60 Hz | V | 24 ... 240 | | | -- |
| • At DC | V | 24 ... 240 | | | -- |
| **Operating frequency** | Hz | 15 ... 400 | | | |
| **Impulse withstand voltage** | V | 6 000 | | 4 000 | 8 000 |
| **Number of CO contacts with delayed switching** | | 1 | | 2 | 0 |
| **Thermal current of the non-solid-state contact blocks, maximum** | A | 4 | | | |

✓ Available
-- Not available

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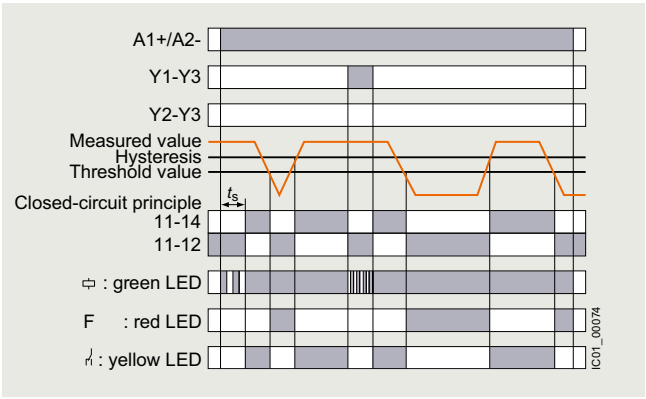
| **Type** | **3UG4581-1AW31**<br>**3UG4582-1AW31**<br>**3UG4583-1CW31**<br>**3UG4983-1AA01** | **3UG4581-2AW31**<br>**3UG4582-2AW31**<br>**3UG4583-2CW31**<br>**3UG4983-2AA01** |
|---|---|---|
| **Type of electrical connection** | **Screw terminals** | **Spring-loaded terminals (push-in)** |
| **Tightening torque** | 0.6 … 0.8 Nm | -- |
| **Type of connectable conductor cross-sections** | | |
| • Finely stranded | 1 x (0.5 ... 4.0 $mm^2$), 2 x (0.5 ... 2.5 $mm^2$) | 2 x (0.5 ... 1.5 $mm^2$) |
| • Finely stranded | | |
| - Without end sleeves | 1 x (0.5 ... 2.5 $mm^2$), 2 x (0.5 ... 1.5 $mm^2$) | 2 x (0.5 ... 1.5 $mm^2$) |
| - With end sleeves | 1 x (0.5 ... 2.5 $mm^2$), 2 x (0.5 ... 1.5 $mm^2$) | 2 x (0.5 ... 1.5 $mm^2$) |
| • For AWG cables | | |
| - Solid | 1 x (20 ... 12), 2 x (20 ... 14) | 2 x (20 ... 16) |
| - Stranded | 1 x (18 ... 14), 2 x (18 ... 16) | 2 x (18 ... 16) |

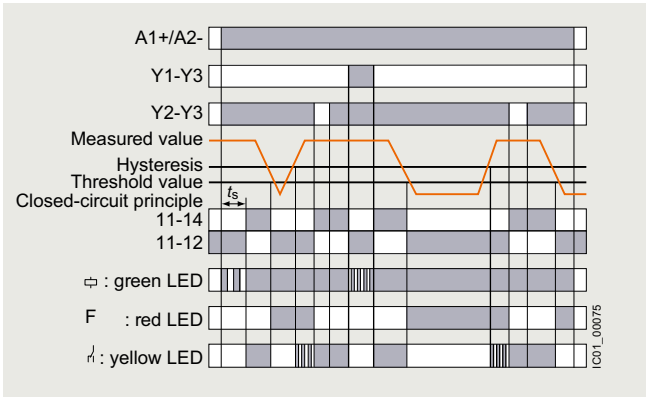
With the closed-circuit principle selected

- Insulation resistance monitoring without fault storage, with Auto RESET

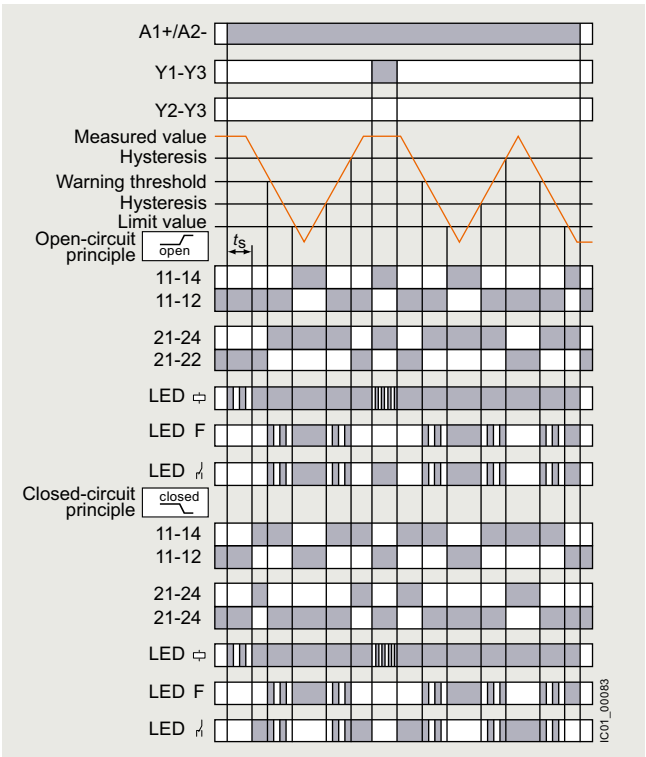



3UG4581, 3UG4582 monitoring relays

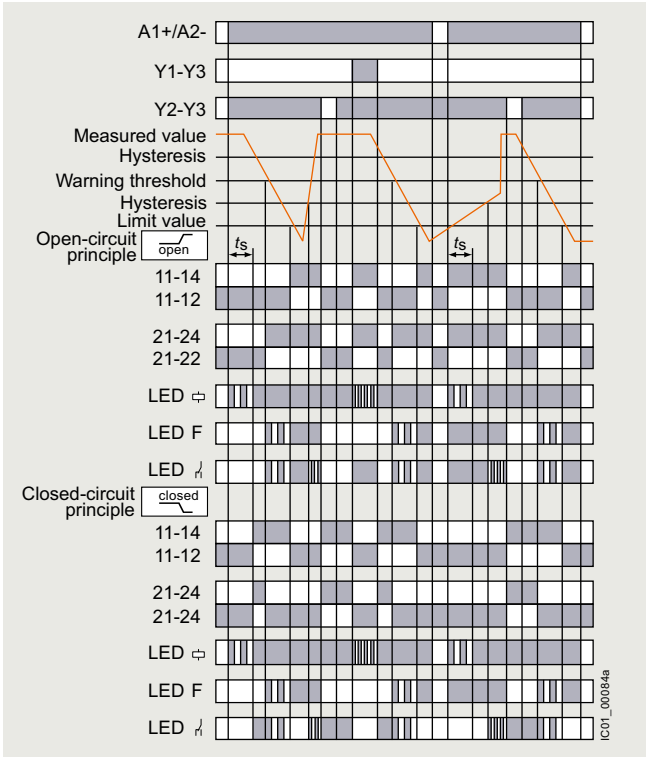
- Insulation resistance monitoring with fault storage and Manual RESET




3UG4581, 3UG4582 monitoring relays




3UG4583 monitoring relays




3UG4583 monitoring relays

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## Insulation monitoring

### Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4581-1AW31

3UG4582-1AW31

3UG4583-1CW31

3UG4583-1AA01

| Measurable voltage at AC | Measurable voltage at DC | Type of voltage of the control supply voltage, value range | System leakage capacitance | Number of CO contacts with delayed switching | Adjustable response value impedance 1 | Adjustable response value impedance 2 | Screw terminals Article No. | Screw terminals Price per PU | Spring-loaded terminals (push-in) Article No. | Spring-loaded terminals (push-in) Price per PU |
|---|---|---|---|---|---|---|---|---|---|---|
| V | V | V AC/DC | µF | | kΩ | kΩ | | | | |
| **Insulation monitors** | | | | | | | | | | |
| 0 ... 460 | -- | 24 ... 240 | 10 | 1 | 1 ... 100 | -- | **3UG4581-1AW31** | | **3UG4581-2AW31** | |
| 0 ... 287.5 | 0 ... 345 | 24 ... 240 | 10 | 1 | 1 ... 100 | -- | **3UG4582-1AW31** | | **3UG4582-2AW31** | |
| 0 ... 460 | 0 ... 690 | 24 ... 240 | 20 | 2 | 1 ... 100 | 2 ... 200 | **3UG4583-1CW31** | | **3UG4583-2CW31** | |
| **Voltage reducer modules** | | | | | | | | | | |
| For the 3UG4583 insulation monitoring relay for extending the network voltage range to 690 V AC and 1000 V DC | | | | | | | | | | |
| 0 ... 460 | 0 ... 690 | -- | 20 | 0 | -- | -- | **3UG4983-1AA01** | | **3UG4983-2AA01** | |

10



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

SIRIUS 3UG4501 monitoring relay

The 3UG4501 level monitoring relay is used in combination with 2- or 3-pole sensors to monitor the levels of conductive liquids.

## Benefits

- Can be used worldwide thanks to wide voltage range from 24 to 240 V (absolute limit values)
- Individually shortenable 2- and 3-pole wire electrodes for easy mounting from above/below
- Bow electrodes for installation from the side, for larger filling levels and minimum space requirements
- Can be flexibly adapted to different conductive liquids through analog setting of the sensitivity from 2 to 200 kΩ
- Compensation for wave movements through tripping delay times from 0.1 to 10 s
- Upstream or downstream function selectable
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

## Application

- Single-point and two-point level monitoring
- Overflow protection
- Dry-running protection
- Leak monitoring

## Technical specifications

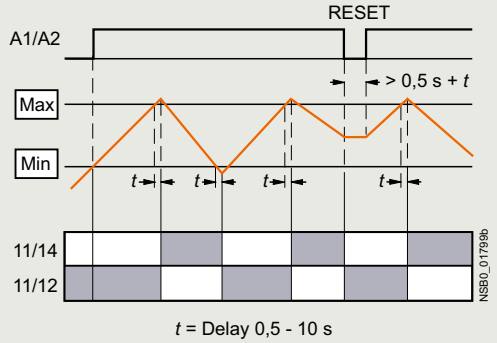
### *3UG4501 monitoring relays*

The principle of operation of the 3UG4501 level monitoring relay is based on measuring the electrical resistance of the liquid between two immersion sensors and a reference terminal. If the measured value is lower than the sensitivity set at the front, the output relay changes its switching state. In order to preclude active current undershooting of the liquid, the sensors are supplied with alternating current.

Two-point control

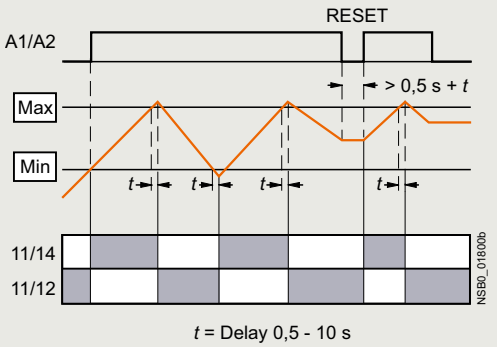
The output relay changes its switching state as soon as the liquid level reaches the maximum sensor, while the minimum sensor is submerged. The relay returns to its original switching state as soon as the minimum sensor no longer has contact with the liquid.

OVER, two-point control




*t* = Delay 0,5 - 10 s

UNDER, two-point control




*t* = Delay 0,5 - 10 s

Note:

It is also possible to connect other resistance sensors to the Min and Max terminals in the range 2 to 200 kΩ, e.g. photoresistors, temperature sensors, encoders based on resistance, etc. The monitoring relay can therefore also be used for other applications as well as for monitoring the levels of liquids.

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## Level monitoring

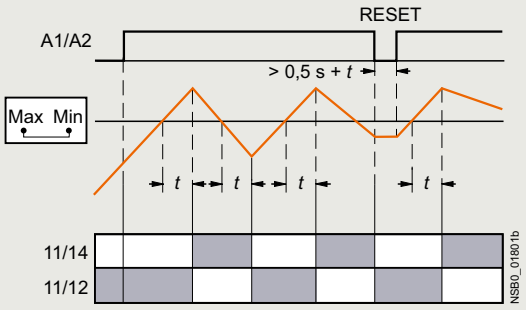
Single-point control

If only one level is being controlled, the terminals for Min and Max on the monitoring relay are bridged. The output relay changes its switching state as soon as the liquid level is reached and returns to its original switching state once the sensor no longer has contact with the liquid.

In order to prevent premature tripping of the switching function caused by wave motion or frothing, even though the set level has not been reached, it is possible to delay this function by 0.5 to 10 s.

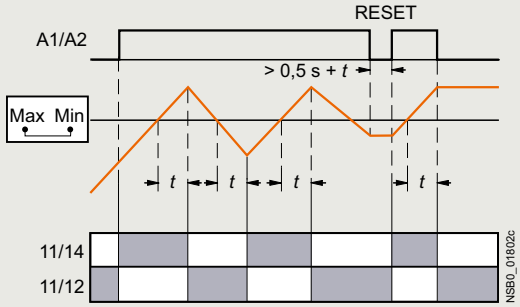
For safe resetting, the control supply voltage must be interrupted for at least the set delay time of +0.5 s.

OVER, single-point control




*t* = Delay 0,5 - 10 s

UNDER, single-point control




*t* = Delay 0,5 - 10 s

| Type | | 3UG4501 |
|---|---|---|
| **General data** | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 3<br>Overvoltage category III according to VDE 0110 | V | 300 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 |
| **Measuring circuit** | | |
| **Electrode current, max.** (typ. 70 Hz) | mA | 1 |
| **Electrode voltage, max.** (typ. 70 Hz) | V | 15 |
| **Sensor feeder cable** | m | Max. 100 |
| **Conductor capacitance of sensor cable**[1)] | nF | Max. 10 |
| **Control circuit** | | |
| **Load capacity of the output relay**<br>Thermal current $I_{th}$ | A | 5 |
| **Rated operational current $I_e$ at**<br>• AC-15/24 ... 400 V<br>• DC-13/24 V<br>• DC-13/125 V<br>• DC-13/250 V | <br>A<br>A<br>A<br>A | <br>3<br>1<br>0.2<br>0.1 |
| **Minimum contact load** at 17 V DC | mA | 5 |

1) The sensor cable does not necessarily have to be shielded, but we do not recommend installing this cable parallel to the power supply lines. It is also possible to use a shielded cable, whereby the shield has to be connected to the M terminal.

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## Selection and ordering data

- For level monitoring of electrically conductive liquids
- Control principle: inlet or sequence control adjustable per rotary switch
- Single-point and two-point control possible
- Analogically adjustable sensitivity (specific resistance of the liquid)
- Analogically adjustable tripping delay time
- 1 yellow LED for displaying the relay state
- 1 green LED for displaying the applied control supply voltage
- 1 CO contact

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

| Sensitivity | Tripping delay time | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|
| | | V | Article No. | Price per PU | Article No. | Price per PU |
| kΩ | s | AC/DC | | | | |
| 2 ... 200 | 0.5 … 10 | 24[1)] | **3UG4501-1AA30** | | **3UG4501-2AA30** | |
| | | 24 ... 240 | **3UG4501-1AW30** | | **3UG4501-2AW30** | |

[1)] The rated control supply voltage and the measuring circuit are not electrically separated.

Accessories, see page 10/95.

Note:

Level monitoring sensors are available from various providers. We recommend sensors made by Jacob GmbH (see "External partners", page 16/18). The previous 3UG3 level sensors are also available from here.

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## Speed monitoring

### Overview

SIRIUS 3UG4651 monitoring relay

The 3UG4651 monitoring relay is used in combination with a sensor to monitor motor drives for overspeed and/or underspeed.

Furthermore, this relay is ideal for all functions where a continuous pulse signal needs to be monitored (e.g. belt travel monitoring, completeness monitoring, passing monitoring, clock-time monitoring).

### Benefits

- Can be used worldwide thanks to wide voltage range from 24 to 240 V (absolute limit values)
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Permanent display of actual value and fault type
- Use of up to 10 sensors per rotation for extremely slowly rotating motors
- Two-wire or three-wire sensors and sensors with a mechanical switching output or solid-state output can be connected
- Auxiliary voltage for sensor integrated
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

### Application

- Slip or tear of a belt drive
- Overload monitoring
- Transport monitoring for completeness

### Technical specifications

***3UG4651 monitoring relays***

The speed monitoring relay operates according to the principle of period duration measurement.

In the monitoring relay, the time between two successive rising edges of the pulse encoder is measured and compared to the minimum and/or maximum permissible period duration calculated from the set limit values for the speed.

Thus, the period duration measurement recognizes any deviation in speed after just two pulses, even at very low speeds or in the case of extended pulse gaps.

By using up to ten pulse encoders evenly distributed around the circumference, it is possible to shorten the period duration, and in turn the response time. By taking into account the number of sensors in the monitoring relay, the speed continues to be indicated in rpm.

ON-delay time for motor start

To be able to start a motor drive, and depending on whether the open-circuit or closed-circuit principle is selected, the output relay switches to the OK state during the ON-delay time, even if the speed is still below the set value.

The ON-delay time is started by either switching on the auxiliary voltage or, if the auxiliary voltage is already applied, by actuating the respective NC contact (e.g. auxiliary contact).

Speed monitoring with Auto RESET (Memory = no)

If the device is set to Auto RESET, the output relay switches to the OK state, once the adjustable hysteresis threshold is reached in the range of 0.1 to 99.9 rpm and the flashing stops. Any overshoots or undershoots are therefore not stored.

Speed monitoring with Manual RESET (Memory = yes)

If Manual RESET is selected in the menu, the output relay remains in its current switching state and the current measured value and the symbol for overshooting/undershooting continue to flash, even when the speed returns to a permissible value. This stored fault status can be reset by simultaneously pressing the UP▲ and DOWN▼ buttons for > 2 s, by connecting the RESET device terminal to 24 V DC or by switching the control supply voltage off and back on again.

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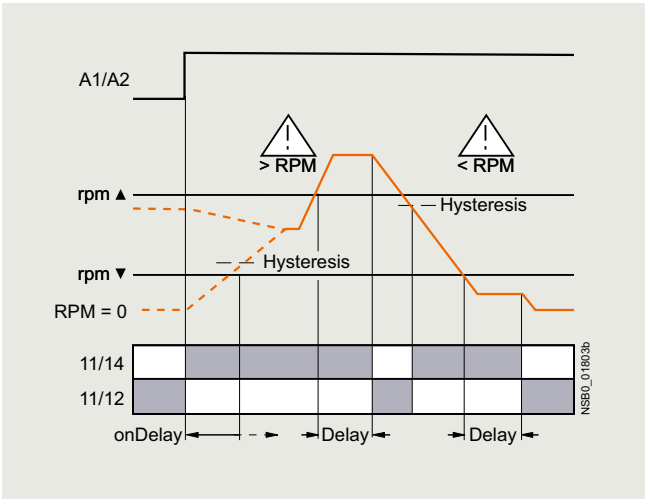
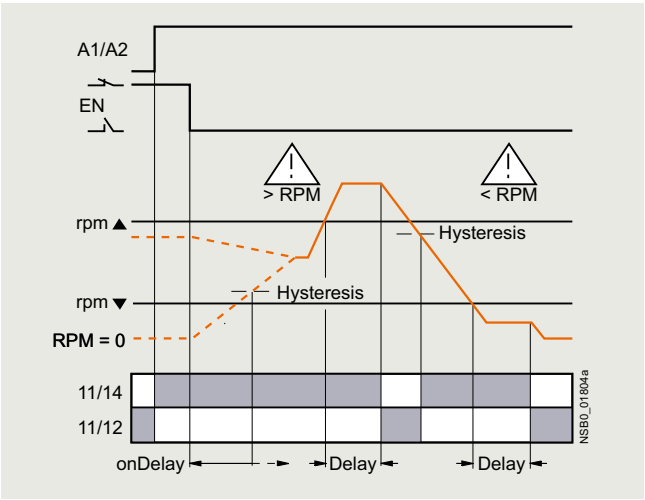
With the closed-circuit principle selected

Range monitoring without enable input




Range monitoring with enable input




| Type | | 3UG4651 |
|---|---|---|
| **General data** | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 3<br>Overvoltage category III according to VDE 0110 | V | 300 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 |
| **Measuring circuit** | | |
| **Sensor supply** | | |
| • For three-wire sensor (24 V/0 V) | mA | Max. 50 |
| • For two-wire NAMUR sensor (8V2) | mA | Max. 8.2 |
| **Signal input** | | |
| • IN1 | kΩ | 16, three-wire sensor, pnp operation |
| • IN2 | kΩ | 1, floating contact, two-wire NAMUR sensor |
| **Voltage level** | | |
| • For level 1 at IN1 | V | 4.5 ... 30 |
| • For level 0 at IN1 | V | 0 ... 1 |
| **Current level** | | |
| • For level 1 at IN2 | mA | > 2.1 |
| • For level 0 at IN2 | mA | < 1.2 |
| **Minimum pulse duration of signal** | ms | 5 |
| **Minimum interval between 2 pulses** | ms | 5 |
| **Control circuit** | | |
| **Number of CO contacts for auxiliary contacts** | | 1 |
| **Load capacity of the output relay**<br>Thermal current $I_{th}$ | A | 5 |
| **Rated operational current $I_e$ at** | | |
| • AC-15/24 ... 400 V | A | 3 |
| • DC-13/24 V | A | 1 |
| • DC-13/125 V | A | 0.2 |
| • DC-13/250 V | A | 0.1 |
| **Minimum contact load** at 17 V DC | mA | 5 |

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## Speed monitoring

### Selection and ordering data

- For speed monitoring in revolutions per minute (rpm)
- Two-wire or three-wire sensor with mechanical or solid-state switching output can be connected
- Two-wire NAMUR sensor can be connected
- Sensor supply 24 V DC/50 mA integrated
- Input frequency 0.1 to 2 200 pulses per minute (0.0017 to 36.7 Hz)
- With or without enable signal for the drive to be monitored
- Digitally adjustable, with illuminated LCD
- Overshoot, undershoot or range monitoring adjustable
- Number of pulses per revolution can be adjusted
- Upper and lower threshold value can be adjusted separately
- Auto, Manual or Remote RESET options after tripping
- Permanent display of actual value and tripping state
- 1 CO contact

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

| Measuring range | Hysteresis | ON-delay time | Tripping delay time | Pulses per revolution | Rated control supply voltage $U_s$ | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Article No. | Price per PU | Article No. | Price per PU |
| rpm | rpm | s | s | | V AC/DC | | | | |
| 0.1 ... 2 200 | OFF<br>0.1 ... 99.9 | 0 ... 900 | 0.1 ... 99.9 | 1 ... 10 | 24[1] | **3UG4651-1AA30** | | **3UG4651-2AA30** | |
| | | | | | 24 ... 240 | **3UG4651-1AW30** | | **3UG4651-2AW30** | |

[1] The rated control supply voltage and the measuring circuit are not electrically separated.

Accessories, see page 10/95.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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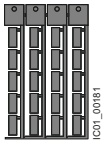
## Selection and ordering data

| | Use | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Accessories for enclosures** | | | | | | | |
| 3RP1902 | For 3UG4 | **Sealable covers**<br>For securing against unauthorized adjustment of setting knobs | **3RP1902** | | 1 | 5 units | 41H |
| 3RP1903 | For 3UG4 | **Push-in lugs**<br>For screw fixing,<br>2 units are required for each device | **3RP1903** | | 1 | 10 units | 41H |
| **Blank labels** | | | | | | | |
|  3RT2900-1SB20 | For 3UG4 | **Unit labeling plates**[1]<br>For SIRIUS devices<br>• 20 mm x 7 mm, titanium gray[1] | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | | |
| 3RA2908-1A | For auxiliary circuit connections | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals** | | | | |
| | | Length approx. 200 mm,<br>3.0 mm x 0.5 mm,<br>titanium gray/black,<br>partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.

Note:

For products for mechanical bearing monitoring, e.g. condition monitoring systems, see www.siemens.com/siplus-cms.

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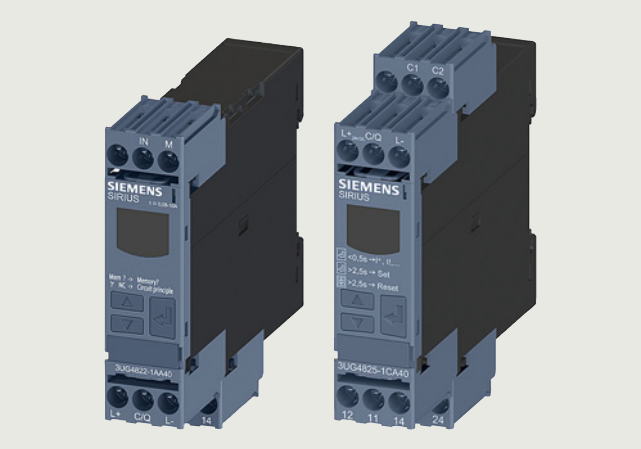
## General data

### Overview




SIRIUS 3UG48 monitoring relays

**More information**

Homepage, see www.siemens.com/sirius-monitoring-relays

Industry Mall, see www.siemens.com/product?3UG48

TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais

Conversion tool, see www.siemens.com/conversion-tool

The SIRIUS 3UG4 monitoring relays for electrical and mechanical variables monitor all important characteristics that allow conclusions to be drawn about the functionality of a plant. Both sudden disturbances and gradual changes, which may indicate the need for maintenance, are detected.

Thanks to their relay outputs, the monitoring relays permit direct disconnection of the affected system components and alerting, e.g. by the triggering of a warning light. Thanks to adjustable delay times the 3UG4 monitoring relays can respond very flexibly to brief faults such as voltage dips or load changes and can thus avoid unnecessary alarms and disconnections and increase system availability.

#### *3UG48 monitoring relays for IO-Link*

The SIRIUS 3UG48 monitoring relays for IO-Link also offer many other options based upon the monitoring functions of the tried-and-tested SIRIUS 3UG4 monitoring relays:

- Measured value transmission to a controller, including resolution and unit, may be parameterizable as to which value is cyclically transmitted
- Transmission of alarm flags to a controller
- Full diagnostics capability by inquiry as to the cause of the fault in the diagnostics data record
- Remote parameterization is also possible, in addition to or instead of local parameterization
- Rapid parameterization of the same devices by duplication of the parameterization in the controller
- Parameter transmission through uploading to a controller by IO-Link call or by parameter server (if IO-Link master from IO-Link specification V1.1 and higher is used)
- Consistent central data storage in the event of parameter change locally or via a controller
- Automatic reparameterizing when devices are exchanged
- Blocking of local parameterization via IO-Link possible
- Faults are saved in parameterizable and non-volatile fashion to prevent an automatic startup after voltage failure and to make sure diagnostics data are not lost
- Integration into the automation level provides the option of parameterizing the monitoring relays at any time via a display unit, or displaying the measured values in a control room or locally at the machine/control cabinet.

Even without communication via IO-Link the devices continue to function fully autonomously:

- Parameterization can take place locally at the device, independently of a controller.
- In the event of failure or before the controller becomes available the monitoring relays work as long as the control supply voltage (24 V DC) is present.
- If the monitoring relays are operated without the controller, the 3UG48 monitoring relays have, thanks to the integrated SIO mode, an additional semiconductor output, which switches when the adjustable warning threshold is exceeded.

Thanks to the combination of autonomous monitoring relay function and integrated IO-Link communication, redundant sensors and/or analog signal converters – which previously took over the transmission of measured values to a controller, leading to considerable extra cost and wiring overhead – are no longer needed.

Because the output relays are still present, the monitoring relays increase the functional reliability of the system, since only the controller can fulfill the control tasks if the current measured values are available, whereas the output relays can also be used for the disconnection of the system if limit values that cannot be reached during operation are exceeded.

The individual 3UG48 monitoring relays for IO-Link offer the following functions in different combinations:

- Phase sequence
- Phase failure, neutral conductor failure
- Phase asymmetry
- Undershooting and/or overshooting of limit values for voltage
- Undershooting and/or overshooting of limit values for current
- Undershooting and/or overshooting of power factor limit values
- Monitoring of the active current or the apparent current
- Monitoring of the residual current
- Undershooting and/or overshooting of limit values for speed

Note:

For more information on the IO-Link bus system, see page 2/88 onwards.

Notes on security

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.

For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

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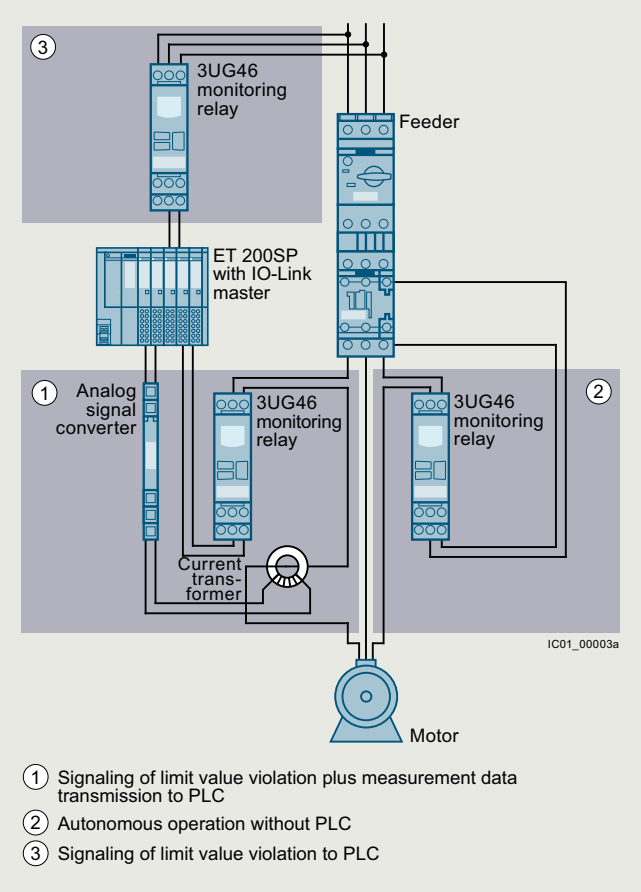
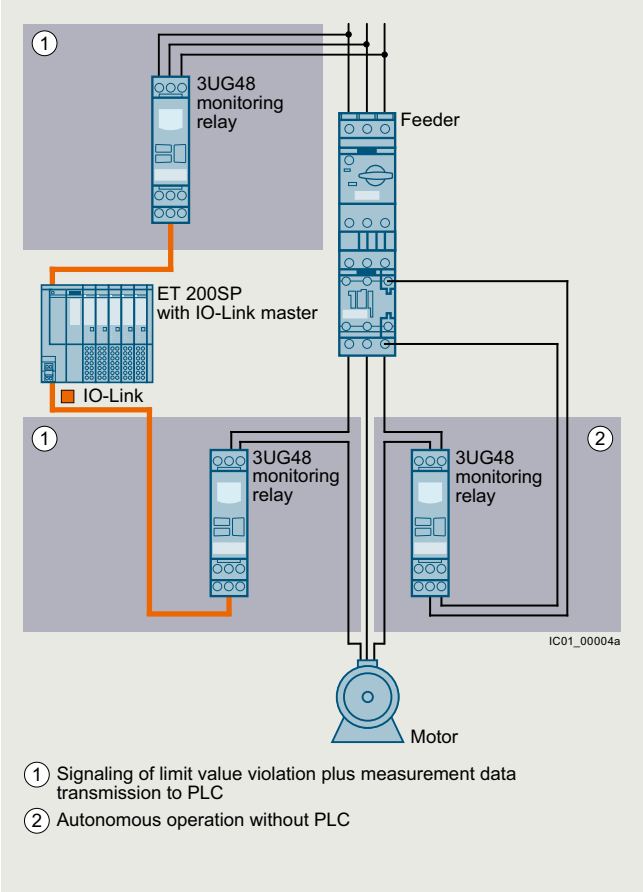



Use of conventional monitoring relays




Monitoring relays for IO-Link

Notes:

Devices required for communication via IO-Link:
- Any controller that supports IO-Link (e.g. ET 200SP with CPU or S7-1200), see Catalog ST 70.
- IO-Link master (e.g. CM 4xIO-Link for SIMATIC ET 200SP, see page 2/99 or SM 1278 for S7-1200, see page 2/98).

Each monitoring relay requires an IO-Link channel.

***Article number scheme***

| Product versions | | Article number |
|---|---|---|
| **3UG4 monitoring relay with IO-Link** | | **3UG4 □ □ □ – □ □ □ □ 0** |
| Type of setting | e.g. 8 = analogically adjustable | □ |
| Functions | e.g. 15 = line monitoring | □ □ |
| Connection type | Screw terminals | **1** |
| | Spring-loaded terminals | **2** |
| Contacts | e.g. A = 1 CO contact | □ |
| Supply voltage | e.g. A4 = 160 ... 690 V AC | □ □ |
| Example | | **3UG4 8 1 5 – 1 A A 4 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

- Simple cyclical transmission of the current measured values, relay switching states and events to a controller
- Remote parameterization
- Automatic reparameterizing when devices are exchanged
- Simple duplication of identical or similar parameterizations
- Reduction of control current wiring
- Elimination of testing costs and wiring errors
- Reduction of configuration work
- Integration in TIA means clear diagnostics if a fault occurs
- Cost saving and space saving in control cabinet due to the elimination of AI and IO modules as well as analog signal converters and duplicated sensors

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## General data

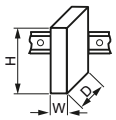
### Application

The use of SIRIUS monitoring relays for IO-Link is particularly recommended for machines and plants in which these relays, in addition to their monitoring function, are to be connected to the automation level for the rapid, simple and fault-free provision of the current measured values and/or for remote parameterization.

The monitoring relays can either relieve the controller of monitoring tasks or, as a second monitoring entity in parallel to and independent of the controller, increase the reliability in the process or in the system. In addition, the elimination of AI and IO modules allows the width of the controller to be reduced despite significantly expanded functionality.

### Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16368/td<br>Equipment Manual and internal circuit diagrams, see https://support.industry.siemens.com/cs/ww/en/view/54375430 | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16368/faq |

| Type | | | 3UG48 |
|---|---|---|---|
| **General technical specifications** | | | |
| Dimensions (W x H x D) |  | | |
| • For 3 terminal blocks | | | |
| - Screw terminals | | mm | 22.5 x 92 x 91 |
| - Spring-loaded terminals | | mm | 22.5 x 94 x 91 |
| • For 4 terminal blocks | | | |
| - Screw terminals | | mm | 22.5 x 103 x 91 |
| - Spring-loaded terminals | | mm | 22.5 x 103 x 91 |
| **Permissible ambient temperature** | | | |
| • During operation | | °C | -25 ... +60 |
| **Connection type** | | | **Screw terminals** |
| • Terminal screw | | | M3 (for standard screwdriver, size 2 and Pozidriv 2) |
| • Solid | | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) |
| • Finely stranded with end sleeve | | $mm^2$ | 1 x (0.5 ... 2.5), 2 x (0.5 ... 1.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (20 ... 14) |
| • Tightening torque | | Nm | 0.8 ... 1.2 |
| **Connection type** | | | **Spring-loaded terminals** |
| • Solid | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded, with end sleeve according to DIN 46228 | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • Finely stranded | | $mm^2$ | 2 x (0.25 ... 1.5) |
| • AWG cables, solid or stranded | | AWG | 2 x (24 ... 16) |

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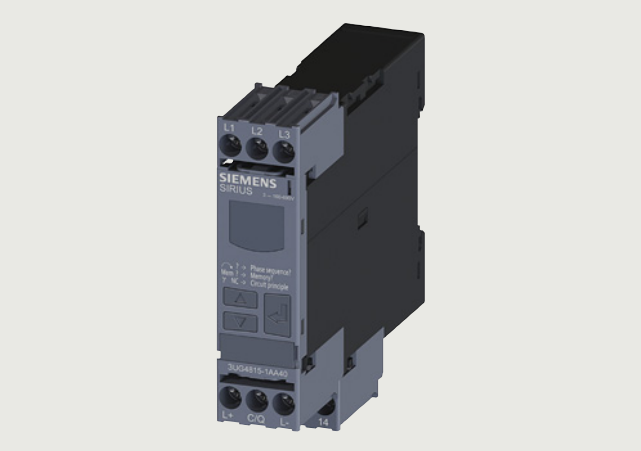
## Overview




SIRIUS 3UG4815 monitoring relay

Solid-state line monitoring relays provide maximum protection for mobile machines, plants and hoisting equipment or for unstable networks. Network and voltage faults can thus be detected early and rectified before far greater damage ensues.

The line monitoring relays with IO-Link monitor phase sequence, phase failure (with or without N conductor monitoring), phase asymmetry and undervoltage and/or overvoltage.

Phase asymmetry is evaluated as the difference between the greatest and the smallest phase voltage relative to the greatest phase voltage. Undervoltage or overvoltage exist if the set limit values for at least one phase voltage are overshot or undershot. The rms value of the voltage is measured.

## Benefits

- Can be used in any network from 160 to 630 V AC worldwide thanks to wide voltage range
- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Display and transmission of actual value and network fault type to controller
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

## Application

The relays are used above all for mobile equipment, e.g. air conditioning compressors, refrigerating containers, building site compressors and cranes.

| Function | Application |
|---|---|
| Phase sequence | • Direction of rotation of the drive |
| Phase failure | • A fuse has tripped<br>• Failure of the control supply voltage<br>• Broken cable |
| Phase asymmetry | • Overheating of the motor due to asymmetrical voltage<br>• Detection of asymmetrically loaded networks |
| Undervoltage | • Increased current on a motor with corresponding overheating<br>• Unintentional resetting of a device<br>• Network collapse, particularly with battery power |
| Overvoltage | • Protection of a plant against destruction due to overvoltage |

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## Technical specifications

### *3UG4815/3UG4816 monitoring relays*

The 3UG4815 and 3UG4816 line monitoring relays have a wide voltage range input and are supplied with power through IO-Link or from an external 24 V DC source.

The device is equipped with a display and is parameterized using three buttons. The 3UG4815 monitoring relay monitors 3-phase networks with regard to phase sequence, phase failure, phase asymmetry, undervoltage and overvoltage. The 3UG4816 monitoring relay monitors the neutral conductor as well. The hysteresis is adjustable from 1 to 20 V.

The device has two separately adjustable delay times for overvoltage and undervoltage and for line stabilization. If the direction of rotation is incorrect or a phase fails, the device switches off immediately. Thanks to a special measuring method, a phase failure is reliably detected in spite of the wide voltage range from and potentially high feedback through the load.

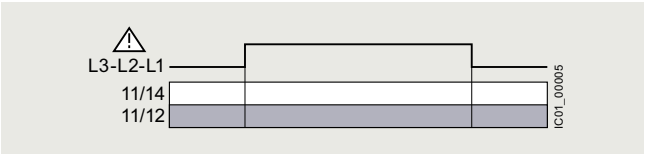
The 3UG4815 and 3UG4816 monitoring relays can be operated on the basis of either the open-circuit or closed-circuit principle and with Manual or Auto RESET.

If Manual RESET is selected in the menu (Memory = Yes), the switching relay remains in its current switching state and the current measured value and the symbol for undershooting and overshooting continue to flash, even when the measured variable reaches a permissible value again. This stored fault status can be reset by simultaneously pressing the UP▲ and DOWN▼ keys for 2.5 s.

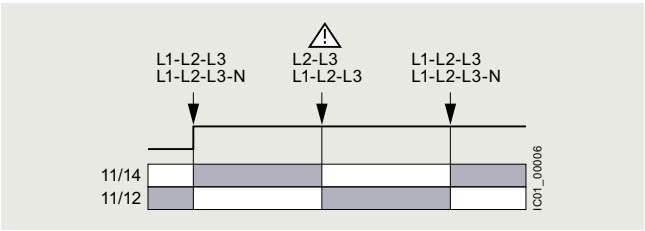
With Manual RESET through IO-Link it is possible in addition to set whether fault messages are to be deleted when the control supply voltage is switched off and on (as Remote RESET) or whether the signals are to be permanently saved even in a voltage failure, with confirmation possible only through local RESET or via IO-Link.

With the closed-circuit principle selected

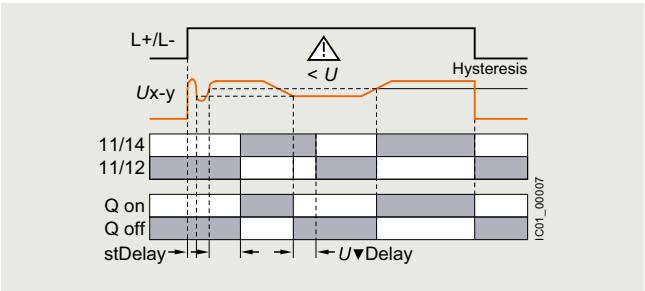
Wrong phase sequence



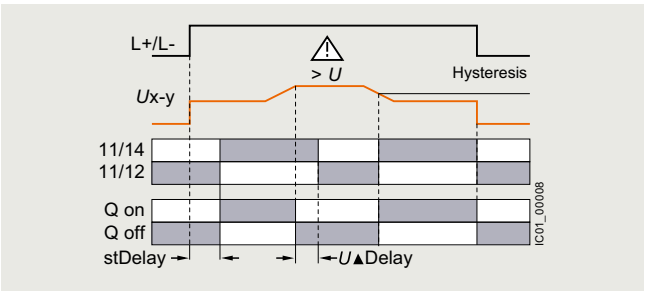

Phase failure




Undervoltage




Overvoltage




| Type | | 3UG4815, 3UG4816 |
|---|---|---|
| **General technical specifications** | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 2<br>Overvoltage category III according to VDE 0110 | V | 690 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Control circuit** | | |
| **Load capacity of the output relay**<br>• Thermal current $I_{th}$ | A | 5 |
| **Rated operational current $I_e$ at**<br>• AC-15/24 ... 400 V<br>• DC-13 at<br>- 24 V<br>- 125 V<br>- 250 V | A<br><br>A<br>A<br>A | 3<br><br>1<br>0.2<br>0.1 |
| **Minimum contact load** at 17 V DC | mA | 5 |
| **Electrical endurance AC-15** | million operating cycles | 0.1 |
| **Mechanical endurance** | million operating cycles | 10 |

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## Selection and ordering data

- Adjustable via IO-Link and locally, with illuminated LCD
- Power supply with 24 V DC via IO-Link or external auxiliary voltage
- Auto or Manual RESET
- Open-circuit or closed-circuit principle
- 1 CO contact, 1 semiconductor output (in SIO mode)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4815-1AA40

3UG4816-1AA40

3UG4815-2AA40

3UG4816-2AA40

| Adjustable hysteresis | Undervoltage detection | Overvoltage detection | Stabilization time adjustable stDEL | Tripping delay time adjustable Del | Version of auxiliary contacts | Measurable line voltage[1] | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Article No. | Price per PU | Article No. | Price per PU |
| V | | | s | s | | V AC | | | | |
| **Monitoring of phase sequence, phase failure, phase asymmetry, overvoltage and undervoltage** | | | | | | | | | | |
| 1 ... 20 | ✓ | ✓ | 0.1 … 999.9 | 0.1 … 999.9 | 1 CO + 1 Q[2] | 160 … 690 | **3UG4815-1AA40** | | **3UG4815-2AA40** | |
| **Monitoring of phase sequence, phase and N conductor failure, phase asymmetry, overvoltage and undervoltage** | | | | | | | | | | |
| 1 ... 20 | ✓ | ✓ | 0.1 … 999.9 | 0.1 … 999.9 | 1 CO + 1 Q[2] | 90 … 400 to N | **3UG4816-1AA40** | | **3UG4816-2AA40** | |

✓ Function supported

[1] Absolute limit values.
[2] In SIO mode.

Accessories, see page 10/118.

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## Voltage monitoring

### Overview

SIRIUS 3UG4832 monitoring relay

The relays monitor 1-phase AC voltages (rms value) and DC voltages against the set limit value for overshoot and undershoot.

### Benefits

- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Display and transmission of actual value and status messages to controller
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

### Application

- Protection of a plant against destruction due to overvoltage
- Switch-on of a plant at a defined voltage and higher
- Protection from undervoltage due to overloaded supply voltages, particularly with battery power

### Technical specifications

***3UG4832 monitoring relays***

The 3UG4832 voltage monitoring relays are supplied with power through IO-Link or with an external auxiliary voltage of 24 V DC and perform overshoot, undershoot or range monitoring of the voltage depending on parameterization. The devices are equipped with a display and are parameterized by means of three buttons or through IO-Link.

The measuring range extends from 10 to 600 V AC/DC. The limit values for overshoot or undershoot can be freely configured within this range. If one of these limit values is reached, the output relay responds according to the set principle of operation as soon as the delay time has elapsed. This tripping delay time *U*▲Del/*U*▼Del can be set from 0 to 999.9 s, as can the ON-delay time onDel. The hysteresis is adjustable from 0.1 to 300 V.

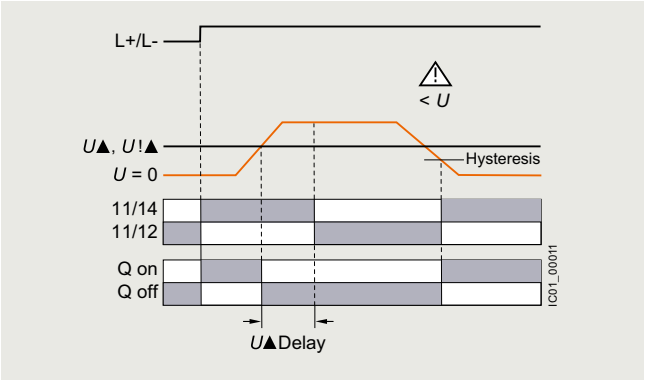
The device can be operated on the basis of either the open-circuit or closed-circuit principle and with Manual or Auto RESET. One output changeover contact is available as a signaling contact, and a semiconductor output is available in addition in SIO mode.

If Manual RESET is selected in the menu (Memory = Yes), the switching relay remains in its current switching state and the current measured value and the symbol for undershooting and overshooting continue to flash, even when the measured variable reaches a permissible value again. This stored fault status can be reset by simultaneously pressing the UP▲ and DOWN▼ keys for 2.5 s.

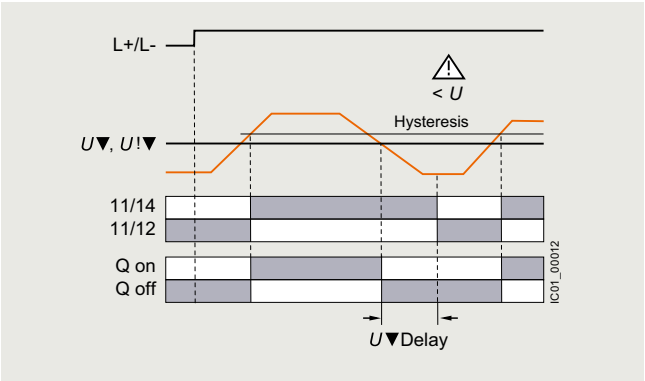
With Manual RESET through IO-Link it is possible in addition to set whether fault messages are to be deleted when the control supply voltage is switched off and on (as Remote RESET) or whether the signals are to be permanently saved even in a voltage failure, with confirmation possible only through local RESET or via IO-Link.

With the closed-circuit principle selected

Overvoltage




Undervoltage



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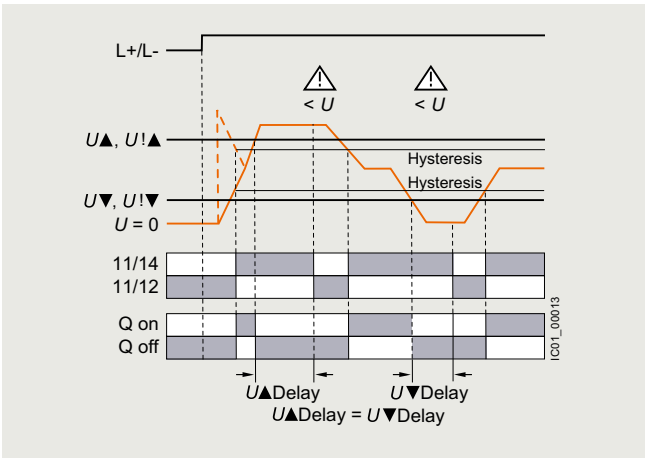
With the closed-circuit principle selected

Range monitoring




| Type | | 3UG4832 |
|---|---|---|
| **General technical specifications** | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 2<br>Overvoltage category III according to VDE 0110 | V | 690 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Measuring circuit** | | |
| **Permissible measuring range** 1-phase AC/DC voltage | V | 10 ... 690 |
| **Measuring frequency** | Hz | 40 ... 500 |
| **Setting range** 1-phase voltage | V | 10 ... 600 |
| **Control circuit** | | |
| **Load capacity of the output relay**<br>• Thermal current $I_{th}$ | A | 5 |
| **Rated operational current $I_e$ at**<br>• AC-15/24 ... 400 V<br>• DC-13 at<br>- 24 V<br>- 125 V<br>- 250 V | A<br>A<br>A<br>A | 3<br>1<br>0.2<br>0.1 |
| **Minimum contact load** at 17 V DC | mA | 5 |

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## Voltage monitoring

### Selection and ordering data

- Adjustable via IO-Link and locally, with illuminated LCD
- Power supply with 24 V DC via IO-Link or external auxiliary voltage
- Auto or Manual RESET
- Open-circuit or closed-circuit principle
- 1 CO contact, 1 semiconductor output (in SIO mode)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4832-1AA40

3UG4832-2AA40

| Measuring range | Adjustable hysteresis | ON-delay time adjustable onDel | Tripping delay time separately adjustable *U*▲Del/*U*▼Del | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|
| | | | | Article No. | Price per PU | Article No. | Price per PU |
| V AC/DC | V | s | s | | | | |
| **Monitoring of voltage for overshooting and undershooting** | | | | | | | |
| 10 ... 600 | 0.1 ... 300 | 0 … 999.9 | 0 … 999.9 | **3UG4832-1AA40** | | **3UG4832-2AA40** | |

Accessories, see page 10/118.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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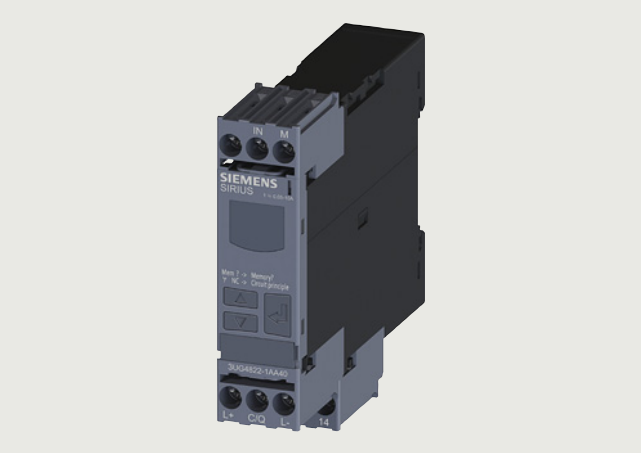
## Overview




SIRIUS 3UG4822 monitoring relay

The relays monitor 1-phase AC currents (rms value) and DC currents against the set limit value for overshoot and undershoot.

## Benefits

- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Width 22.5 mm
- Display and transmission of actual value and status messages to controller
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

## Application

- Overcurrent and undercurrent monitoring
- Monitoring the functionality of electrical loads
- Monitoring for broken conductors

## Technical specifications

### *3UG4822 monitoring relays*

The 3UG4822 current monitoring relays are supplied with power through IO-Link or with an external voltage of 24 V DC and perform overshoot, undershoot or range monitoring of the current depending on the parameterization. The devices are equipped with a display and are parameterized using three buttons.

The measuring range extends from 0.05 to 10 A. For larger AC currents the measuring range can be extended by using commercially available current transformers. Using the adjustable transformer factor, the display of the measured primary currents up to 750 A instead of the secondary currents (max. 1 A or 5 A) is possible.

The rms value of the current is measured. The limit values for overshoot or undershoot can be freely configured within this range. If one of these limit values is reached, the output relay responds according to the set principle of operation as soon as the tripping delay time *I*▲Del/*I*▼Del has elapsed. This time and the ON-delay time onDel are adjustable from 0 to 999.9 s.

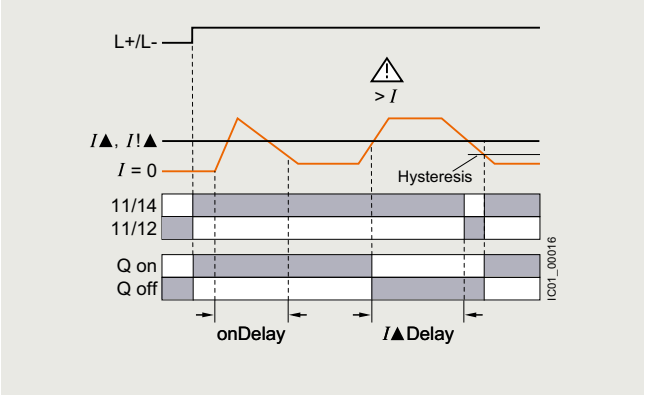
The hysteresis is adjustable from 0.01 to 5 A. The device can be operated with Manual or Auto RESET and on the basis of either the open-circuit or closed-circuit principle. You can decide here whether the output relay is to respond when the supply voltage $U_s$ = ON is applied, or not until the lower measuring range limit of the measuring current ($I$ > 50 mA) is reached. One output changeover contact is available as a signaling contact, and a semiconductor output is available in addition in SIO mode.

If Manual RESET is selected in the menu (Memory = Yes), the switching relay remains in its current switching state and the current measured value and the symbol for undershooting and overshooting continue to flash, even when the measured variable reaches a permissible value again. This stored fault status can be reset by simultaneously pressing the UP▲ and DOWN▼ keys for 2.5 s.

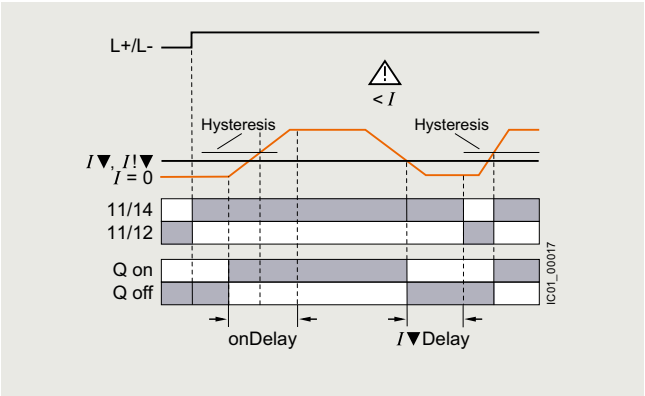
With Manual RESET through IO-Link it is possible in addition to set whether fault messages are to be deleted when the control supply voltage is switched off and on (as Remote RESET) or whether the signals are to be permanently saved even in a voltage failure, with confirmation possible only through local RESET or via IO-Link.

With the closed-circuit principle selected upon application of the control supply voltage

Current overshoot




Current undershoot



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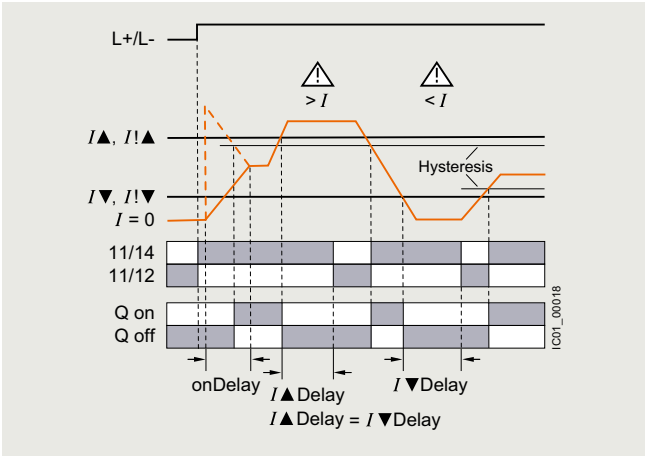
## Current monitoring

With the closed-circuit principle selected upon application of the control supply voltage

Range monitoring




| Type | | 3UG4822 |
|---|---|---|
| **General technical specifications** | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 2<br>Overvoltage category III according to VDE 0110 | V | 690 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Measuring circuit** | | |
| **Measuring range** for 1-phase AC/DC current | A | 0.05 … 15 |
| **Measuring frequency** | Hz | 40 ... 500 |
| **Setting range** for 1-phase current | A | 0.05 ... 10 |
| **Load supply voltage** | V | Max. 300 (with protective separation)<br>Max. 500 (with simple separation) |
| **Control circuit** | | |
| **Load capacity of the output relay** | | |
| • Thermal current $I_{th}$ | A | 5 |
| **Rated operational current $I_e$ at** | | |
| • AC-15/24 ... 400 V | A | 3 |
| • DC-13 at | | |
| - 24 V | A | 1 |
| - 125 V | A | 0.2 |
| - 250 V | A | 0.1 |
| **Minimum contact load** at 17 V DC | mA | 5 |

10

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## Selection and ordering data

- Adjustable via IO-Link and locally, with illuminated LCD
- Power supply with 24 V DC via IO-Link or external auxiliary voltage
- Adjustable transformer factor to display the measured primary current when an external current transformer is used
- Auto or Manual RESET
- Open-circuit or closed-circuit principle
- 1 CO contact, 1 semiconductor output (in SIO mode)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4822-1AA40

3UG4822-2AA40

| Measuring range | Adjustable hysteresis | ON-delay time adjustable onDel | Tripping delay time separately adjustable I▲Del/I▼Del | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|
| A AC/DC | A | s | s | Article No. | Price per PU | Article No. | Price per PU |
| **Monitoring of current for overshooting and undershooting** | | | | | | | |
| 0.05 … 10 | 0.01 ... 5 | 0.1 … 999.9 | 0.1 … 999.9 | **3UG4822-1AA40** | | **3UG4822-2AA40** | |

Accessories, see page 10/118.

For AC currents $I$ > 10 A it is possible to use commercially available current transformers, e.g. the Siemens 4NC current transformers, as accessories, see Catalog LV 10.

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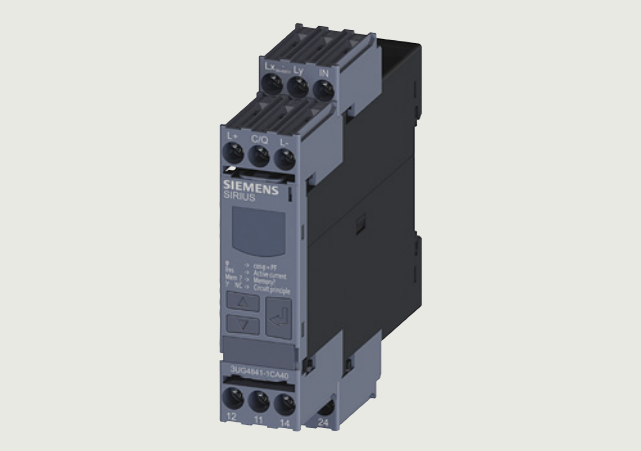
## Power factor and active current monitoring

### Overview




SIRIUS 3UG4841 monitoring relay

The 3UG4841 power factor and active current monitoring devices enable the load monitoring of motors.

Whereas power factor (p.f.) monitoring is used above all for monitoring no-load operation, the active current monitoring option can be used to observe and evaluate the load factor over the entire torque range.

### Benefits

- Monitoring of even small 1-phase motors with a no-load supply current below 0.5 A
- Simple determination of threshold values by directly referencing measured variables to motor loading
- Range monitoring and active current measurement enable detection of cable breaks between control cabinets and motors, as well as phase failures
- Power factor (p.f.) and/or $I_{res}$ (active current) can be selected as the measurement principle
- Width 22.5 mm
- Display and transmission of actual value and status messages to controller
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

### Application

- No-load monitoring and load shedding, such as in the event of a V-belt tear
- Underload monitoring in the low-end performance range, e.g. in the event of pump no-load operation
- Monitoring of overload, e.g. due to a dirty filter system
- Power factor monitoring in networks for control of compensation equipment
- Broken cable between control cabinet and motor

### Technical specifications

***3UG4841 monitoring relays***

3UG4841 monitoring relays are supplied with power through IO-Link or with an external auxiliary voltage of 24 V DC and are used for performing overshoot, undershoot or range monitoring of the power factor and/or the resulting active current, depending on parameterization. The load to be monitored is connected upstream of the IN terminal. The load current flows through the terminals IN and Ly/N. The setting range for the power factor is 0 to 0.99 and for the active current $I_{res}$ it is 0.2 to 10 A. If the control supply voltage is switched on and no load current is flowing yet, the display will show $I$ < 0.2 A and a symbol for overshoot, undershoot or range monitoring. If the motor is now switched on and the current exceeds 0.2 A, the set ON-delay time onDel begins. During this time, if the set limit values are undershot or exceeded, this does not lead to a relay reaction of the changeover contact. If the operational flowing active current and/or the p.f. value falls below or exceeds the respective set threshold value, the tripping delay time begins. When this time has expired, the relay changes its switch position. The relevant measured variables for overshooting and undershooting in the display flash. If monitoring for active current undershoot is switched off ($I_{res}$▼= OFF), and if the load current undershoots the lower measuring range threshold (0.2 A), the CO contacts remain unchanged. If a threshold value is set for the monitoring of active current undershooting, then undershooting of the measuring range threshold (0.2 A) will result in a response of the CO contacts.

The relay operates either according to the open-circuit or closed-circuit principle.

If the device is set to Auto RESET (Memory = No), depending on the set principle of operation, the switching relay returns to its initial state and the flashing ends when the hysteresis threshold is reached.

If Manual RESET is selected in the menu (Memory = Yes), the switching relay remains in its current switching state and the current measured value and the symbol for undershooting and overshooting continue to flash, even when the measured variable reaches a permissible value again. This stored fault status can be reset by simultaneously pressing the UP▲ and DOWN▼ keys for 2.5 s.

With Manual RESET through IO-Link it is possible in addition to set whether fault messages are to be deleted when the control supply voltage is switched off and on (as Remote RESET) or whether the signals are to be permanently saved even in a voltage failure, with confirmation possible only through local RESET or via IO-Link.

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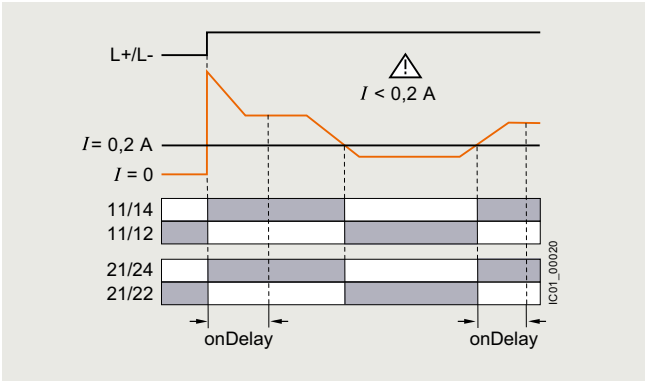
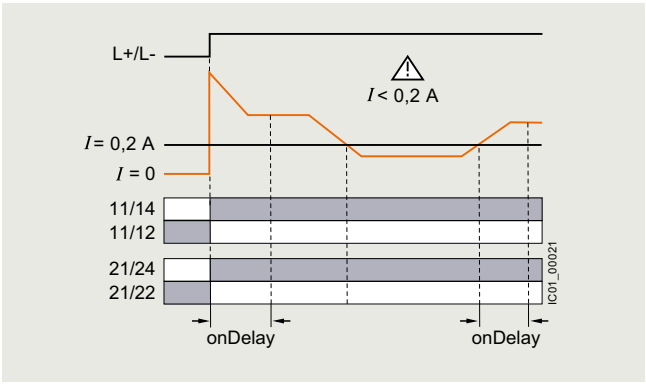
With the closed-circuit principle selected

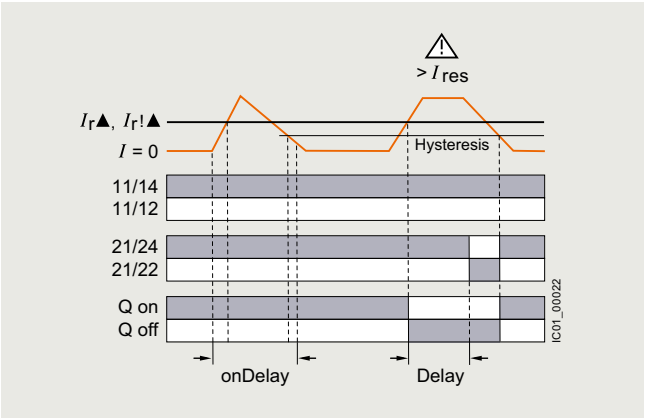
Response in the event of undershooting the measuring range limit with activated monitoring of $I_{res}$▼



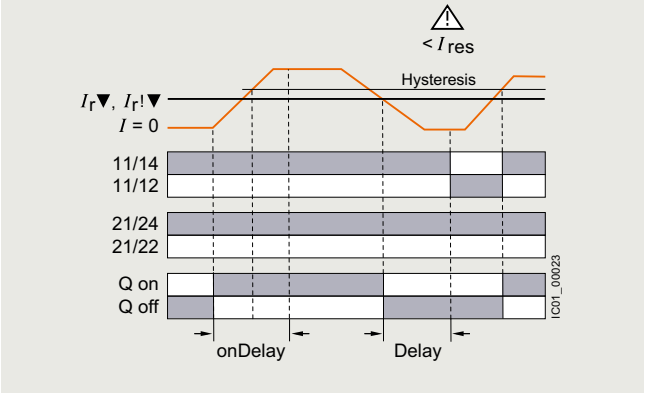

Response in the event of undershooting the measuring range limit with deactivated monitoring of active current undershooting



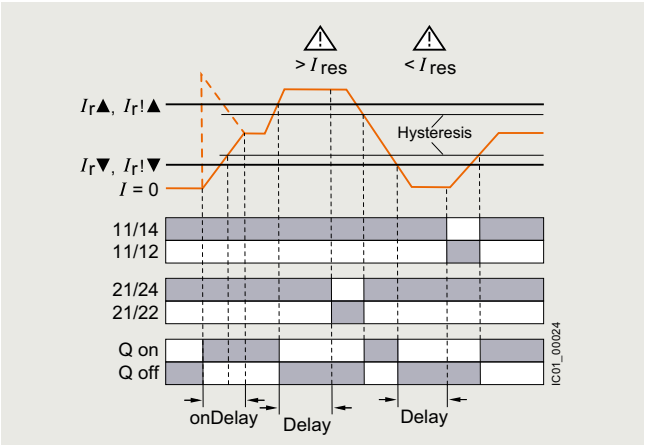

Overshooting of active current




Undershooting of active current




Range monitoring of active current




10

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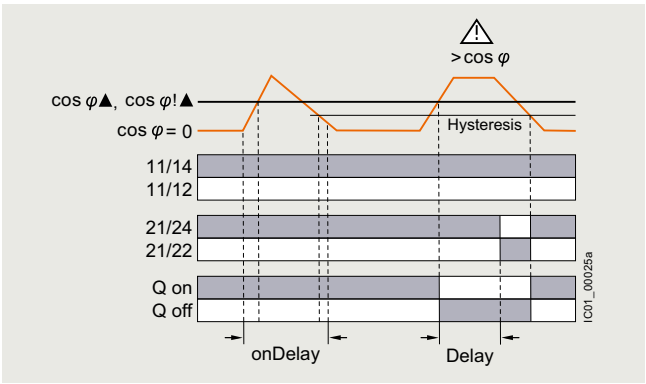
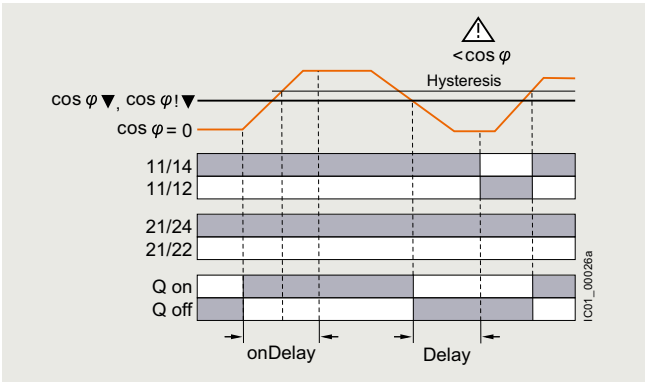
## Power factor and active current monitoring

With the closed-circuit principle selected

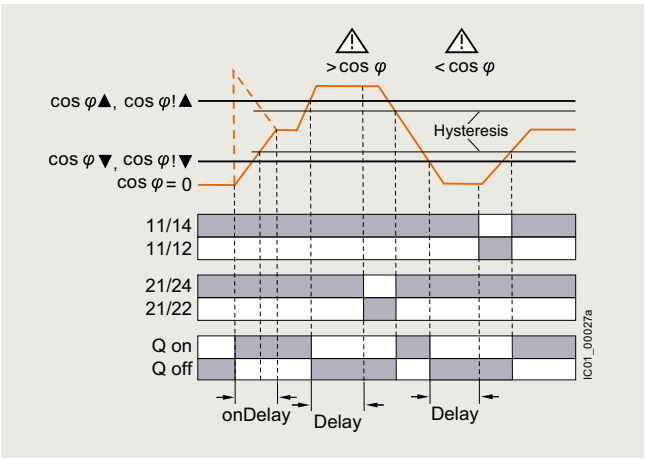
Overshooting of power factor




Undershooting of power factor




Range monitoring of power factor




| Type | | 3UG4841 |
|---|---|---|
| **General technical specifications** | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 2<br>Overvoltage category III according to IEC 60664-1 | V | 690 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 |
| **Control circuit** | | |
| **Number of CO contacts for auxiliary contacts** | | 2 |
| **Load capacity of the output relay**<br>• Thermal current $I_{th}$ | A | 5 |
| **Rated operational current $I_e$ at**<br>• AC-15/24 ... 400 V<br>• DC-13 at<br>- 24 V<br>- 125 V<br>- 250 V | A<br><br>A<br>A<br>A | 3<br><br>1<br>0.2<br>0.1 |
| **Minimum contact load** at 17 V DC | mA | 5 |

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## Selection and ordering data

- For monitoring the power factor and the active current $I_{res}$ (p.f. x $I$)
- Suitable for 1-phase and 3-phase currents
- Adjustable via IO-Link and locally, with illuminated LCD
- Power supply with 24 V DC via IO-Link or external auxiliary voltage
- Overshoot, undershoot or range monitoring adjustable
- Upper and lower limit values can be adjusted separately
- Permanent display of actual value and tripping state
- 1 CO contact each for undershoot and overshoot, 1 semiconductor output (in SIO mode)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4841-1CA40

3UG4841-2CA40

| Measuring range | | Voltage range of the measuring voltage[1] | Hysteresis | | ON-delay time adjustable onDel | Tripping delay time separately adjustable $U$▲Del/ $U$▼Del, $\varphi$▲Del/ $\varphi$▼Del | **Screw terminals** | | **Spring-loaded terminals** | |
|---|---|---|---|---|---|---|---|---|---|---|
| for power factor | for active current $I_{res}$ | 50/60 Hz AC | adjust-able for power factor | adjust-able for active current $I_{res}$ | | | Article No. | Price per PU | Article No. | Price per PU |
| P.f. | A | V | P.f. | A | s | s | | | | |
| **Monitoring of power factor and active current for overshooting or undershooting** | | | | | | | | | | |
| 0.1 ... 0.99 | 0.2 ... 10 | 90 ... 690 | 0.1 ... 0.2 | 0.1 ... 3 | 0 ... 999.9 | 0 ... 999.9 | **3UG4841-1CA40** | | **3UG4841-2CA40** | |

[1] Absolute limit values.

Accessories, see page 10/118.

For AC active currents $I_{res}$ > 10 A it is possible to use commercially available current transformers, e.g. Siemens 4NC current transformers, as accessories, see Catalog LV 10.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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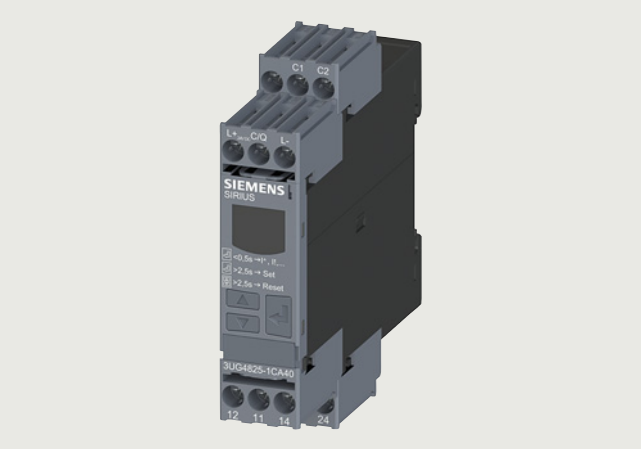
## Overview




SIRIUS 3UG4825 monitoring relay

The 3UG4825 residual-current monitoring relays are used in conjunction with the 3UL23 residual-current transformers for monitoring plants in which higher residual currents are increasingly expected due to ambient conditions. Monitoring encompasses pure AC residual currents or AC residual currents with a pulsating DC fault current component (transformer, type A in accordance with DIN VDE 0100-530/IEC TR 60755).

## Benefits

- High measuring accuracy of ±7.5%
- Permanent self-monitoring
- Parameterization of the devices locally or via IO-Link possible
- Variable threshold values for warning and disconnection
- Freely configurable delay times and RESET response
- Display and transmission of actual value and status messages to controller
- High level of flexibility and space saving through installation of the transformer inside or outside the control cabinet
- Width 22.5 m
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

## Application

Monitoring of plants in which residual currents can occur, e.g. due to dust deposits or moisture, porous cables and leads, or capacitive residual currents.

## Technical specifications

***3UG4825 monitoring relays***

The main conductor, and any neutral conductor to which a load is connected, are routed through the opening of the toroidal core of a residual-current transformer. A secondary winding is placed around this toroidal core to which the monitoring relay is connected.

If operation of a plant is fault-free, the sum of the inflowing and outward currents equals zero. No current is then induced in the secondary winding of the residual-current transformer.

However, if an insulation fault occurs, the sum of the inflowing currents is greater than that of the outward currents. The differential current – i.e. the residual current – induces a secondary current in the secondary winding of the transformer. This current is evaluated in the monitoring relay and is used on the one hand to display the actual residual current and on the other, to switch the relay if the set warning or tripping threshold is overshot.

If the measured residual current exceeds the set warning value, the associated changeover contact instantly changes the switching state and an indication appears on the display.

If the measured residual current exceeds the set tripping value, the set delay time begins and the associated relay symbol flashes. On expiry of this time, the associated changeover contact changes the switching state.

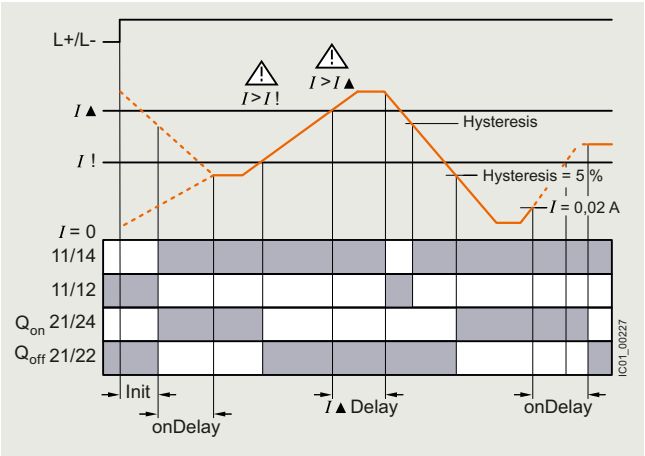
ON-delay time for motor start

To be able to start a drive when a residual current is detected, the output relays switch to the OK state for an adjustable ON-delay time depending on the selected open-circuit principle or closed-circuit principle.

The changeover contacts do not react if the set threshold values are overshot during this period.

With the closed-circuit principle selected

Residual-current monitoring with Auto RESET (Memory = no)




If the device is set to Auto RESET, the relay switches back to the OK state for the tripping value after tripping once the value falls below the set hysteresis threshold and the display stops flashing.

The associated relay changes its switching state if the value falls below the fixed hysteresis value of 5% of the warning value.

Any overshoots are therefore not stored.

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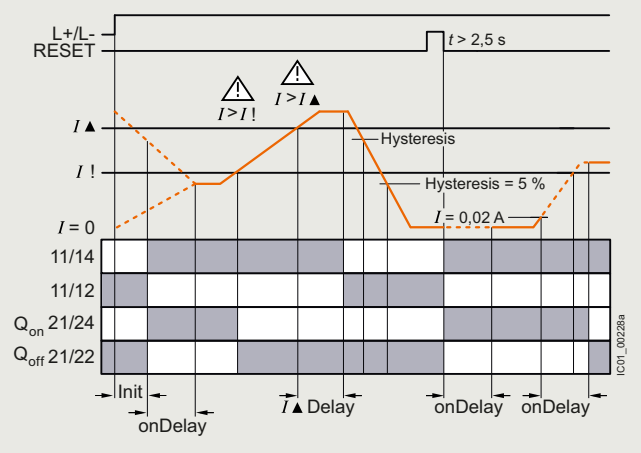
Residual-current monitoring with Manual RESET (Memory = yes)




If Manual RESET is selected in the menu, the output relays remain in their current switching state and the current measured value and the symbol for overshooting continue to flash, even when the measured residual current returns to a permissible value. This stored fault status can be reset by simultaneously pressing the UP▲ and DOWN▼ keys for > 2 seconds, or by switching the supply voltage off and back on again.

Note:

The neutral conductor must not be grounded downstream of the summation current transformer as this may impair the function of the residual-current monitoring device.

| **Type** | | **3UG4825-1CA40, 3UG4825-2CA40** |
|---|---|---|
| **General data** | | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3, rated value** | V | 300 |
| **Impulse withstand voltage, rated value $U_{imp}$** | kV | 4 |
| **Control circuit** | | |
| **Number of CO contacts for auxiliary contacts** | | 2 |
| **Thermal current of the non-solid-state contact blocks, maximum** | A | 5 |
| **Current-carrying capacity of the output relay** | | |
| • At AC-15 at 250 V at 50/60 Hz | A | 3 |
| • At DC-13 | | |
| - At 24 V | A | 1 |
| - At 125 V | A | 0.2 |
| - At 250 V | A | 0.1 |
| **Operational current at 17 V, minimum** | mA | 5 |

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## Selection and ordering data

- For monitoring residual currents from 0.03 to 40 A, from 16 to 400 Hz
- For 3UL23 residual-current transformers with feed-through opening from 35 to 210 mm
- Permanent self-monitoring
- Certified in accordance with IEC 60947, functionality corresponds to IEC 62020
- Digitally adjustable, with illuminated LCD
- Permanent display of actual value and tripping state
- Separately adjustable limit value and warning threshold
- 1 changeover contact each for warning threshold and tripping threshold

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4825-1CA40

3UG4825-2CA40

| Measurable current | Adjustable response value current | Switching hysteresis | Adjustable ON-delay time | Control supply voltage at DC, rated value | Screw terminals Article No. | Screw terminals Price per PU | Spring-loaded terminals Article No. | Spring-loaded terminals Price per PU |
|---|---|---|---|---|---|---|---|---|
| A | A | % | s | V | | | | |
| 0.01 ... 43 | 0.03 ... 40 | 0 ... 50 | 0 ... 999.9 | 24 | **3UG4825-1CA40** | | **3UG4825-2CA40** | |

Accessories, see page 10/118.

For 3UL23 residual-current transformers and accessories for 3UL23, see page 10/84.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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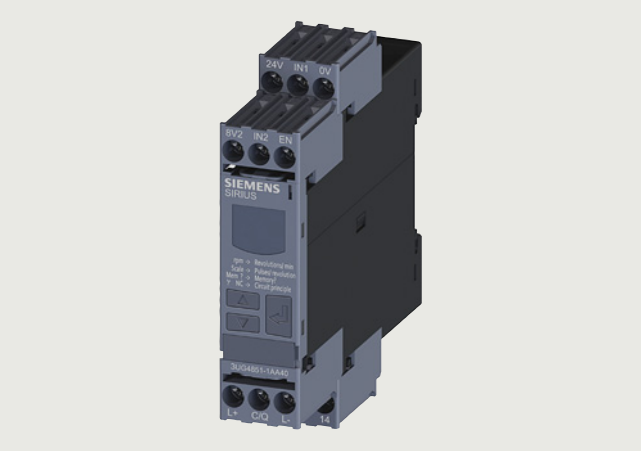
## Overview




SIRIUS 3UG4851 monitoring relay

3UG4851 monitoring relays are used in combination with a sensor to monitor drives for overspeed and/or underspeed.

Furthermore, the monitoring relays are ideal for all functions where a continuous pulse signal needs to be monitored (e.g. belt travel monitoring, completeness monitoring, passing monitoring, clock-time monitoring).

## Benefits

- Variably adjustable to overshoot, undershoot or range monitoring
- Freely configurable delay times and RESET response
- Display and transmission of actual value and fault type to controller
- Use of up to 10 sensors per rotation for extremely slowly rotating motors
- Two-wire or three-wire sensors and sensors with a mechanical switching output or solid-state output can be connected
- Auxiliary voltage for sensor integrated
- All versions with removable terminals
- All versions with screw or spring-loaded terminals

## Application

- Slip or tear of a belt drive
- Overload monitoring
- Transport monitoring for completeness

## Technical specifications

***3UG4851 monitoring relays***

The speed monitoring relay operates according to the principle of period duration measurement.

In the monitoring relay, the time between two successive rising edges of the pulse encoder is measured and compared to the minimum and/or maximum permissible period duration calculated from the set limit values for the speed.

Thus, the period duration measurement recognizes any deviation in speed after just two pulses, even at very low speeds or in the case of extended pulse gaps.

By using up to ten pulse encoders evenly distributed around the circumference, it is possible to shorten the period duration, and in turn the response time. By taking into account the number of sensors in the monitoring relay, the speed continues to be indicated in rpm.

ON-delay time for motor start

To be able to start a motor drive, and depending on whether the open-circuit or closed-circuit principle is selected, the output relay switches to the OK state during the ON-delay time, even if the speed is still below the set value.

The ON-delay time is started by either switching on the auxiliary voltage or, if the auxiliary voltage is already applied, by actuating the respective NC contact (e.g. auxiliary contact).

Speed monitoring with Auto RESET (Memory = no)

If the device is set to Auto RESET, the output relay switches to the OK state, once the adjustable hysteresis threshold is reached in the range of 1 to 99.9 rpm and the flashing stops. Any overshoots or undershoots are therefore not stored.

Speed monitoring with Manual RESET (Memory = yes)

If Manual RESET is selected in the menu, the output relay remains in its current switching state and the current measured value and the symbol for overshooting/undershooting continue to flash, even when the speed returns to a permissible value. This stored fault status can be reset by simultaneously pressing the UP▲ and DOWN▼ buttons for > 2.5 s or by connecting the RESET device terminal to 24 V DC.

With Manual RESET through IO-Link it is possible in addition to set whether fault messages are to be deleted when the control supply voltage is switched off and on (as Remote RESET) or whether the signals are to be permanently saved even in a voltage failure, with confirmation possible only through local RESET, the Remote RESET contact, or via IO-Link.

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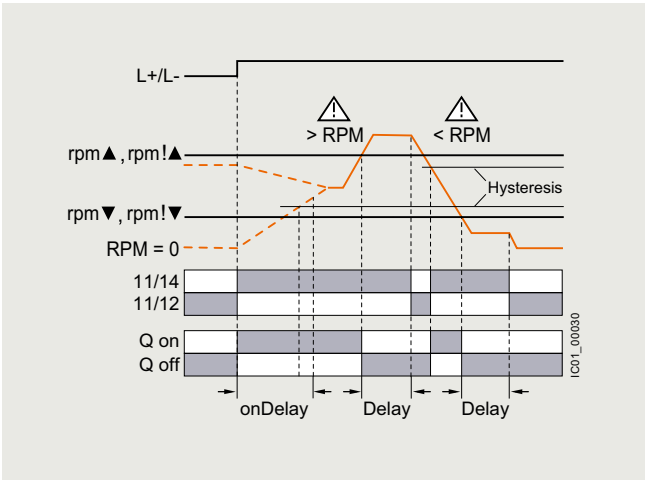
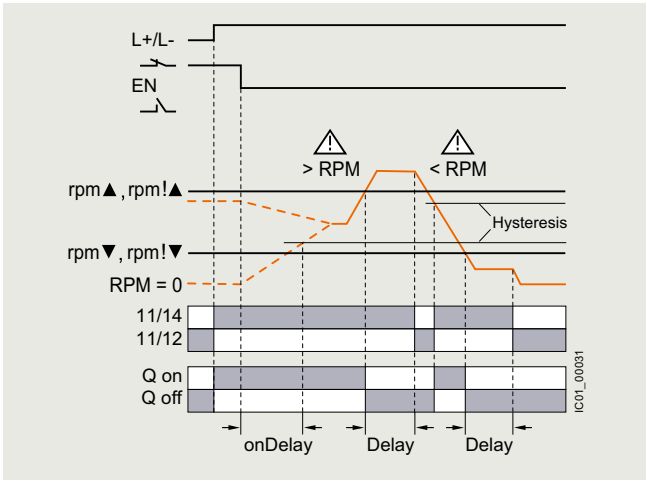
## Speed monitoring

With the closed-circuit principle selected

Range monitoring without enable input




Range monitoring with enable input




| Type | | 3UG4851 |
|---|---|---|
| **General technical specifications** | | |
| **Rated insulation voltage $U_i$**<br>Pollution degree 2<br>Overvoltage category III according to VDE 0110 | V | 300 |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 |
| **Measuring circuit** | | |
| **Sensor supply** | | |
| • For three-wire sensor (24 V/0 V) | mA | Max. 50 |
| • For two-wire NAMUR sensor (8V2) | mA | Max. 8.2 |
| **Signal input** | | |
| • IN1 | kΩ | 16, three-wire sensor, pnp operation |
| • IN2 | kΩ | 1, floating contact, two-wire NAMUR sensor |
| **Voltage level** | | |
| • For level 1 at IN1 | V | 4.5 ... 30 |
| • For level 0 at IN1 | V | 0 ... 1 |
| **Current level** | | |
| • For level 1 at IN2 | mA | > 2.1 |
| • For level 0 at IN2 | mA | < 1.2 |
| **Minimum pulse duration of signal** | ms | 5 |
| **Minimum interval between 2 pulses** | ms | 5 |
| **Control circuit** | | |
| **Number of CO contacts for auxiliary contacts** | | 1 |
| **Load capacity of the output relay**<br>Thermal current $I_{th}$ | A | 5 |
| **Rated operational current $I_e$ at** | | |
| • AC-15/24 ... 250 V | A | 3 |
| • DC-13 at | | |
| - 24 V | A | 1 |
| - 125 V | A | 0.2 |
| - 250 V | A | 0.1 |
| **Minimum contact load** at 17 V DC | mA | 5 |

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## Selection and ordering data

- For speed monitoring in revolutions per minute (rpm)
- Two-wire or three-wire sensor with mechanical or solid-state switching output can be connected
- Two-wire NAMUR sensor can be connected
- Sensor supply 24 V DC/50 mA integrated
- Input frequency 0.1 to 2 200 pulses per minute (0.0017 to 36.7 Hz)
- With or without enable signal for the drive to be monitored
- Adjustable via IO-Link and locally, with illuminated LCD
- Power supply with 24 V DC via IO-Link or external auxiliary voltage
- Overshoot, undershoot or range monitoring adjustable
- Number of pulses per revolution can be adjusted
- Upper and lower limit values can be adjusted separately
- Auto, Manual or Remote RESET options after tripping
- Permanent display of actual value and tripping state
- 1 CO contact, 1 semiconductor output (in SIO mode)

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

3UG4851-1AA40

3UG4851-2AA40

| Measuring range | Adjustable hysteresis | ON-delay time adjustable onDel | Tripping delay time separately adjustable rpm▲Del/ rpm▼Del | Pulses per revolution | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Article No. | Price per PU | Article No. | Price per PU |
| rpm | rpm | s | s | | | | | |
| **Speed monitoring for overshooting and undershooting** | | | | | | | | |
| 0.1 ... 2200 | OFF<br>1 ... 99.9 | 0 ... 999.9 | 0 ... 999.9 | 1 ... 10 | **3UG4851-1AA40** | | **3UG4851-2AA40** | |

Accessories, see page 10/118.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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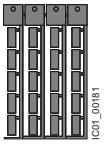
## Accessories

### Selection and ordering data

| | Use | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Accessories for enclosures** | | | | | | | |
| 3RP1902 | For 3UG48 | **Sealable covers**<br>For securing against unauthorized adjustment of setting knobs | **3RP1902** | | 1 | 5 units | 41H |
| 3RP1903 | For 3UG48 | **Push-in lugs**<br>For screw fixing,<br>2 units are required for each device | **3RP1903** | | 1 | 10 units | 41H |
| **Blank labels** | | | | | | | |
|  3RT2900-1SB20 | For 3UG48 | **Unit labeling plates** [1]<br>For SIRIUS devices | | | | | |
| | | • 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| | For 3UG48 | **Adhesive labels**<br>For SIRIUS devices,<br>19 mm x 6 mm, titanium gray | **3RT2900-1SB60** | | 100 | 3060 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | | |
| 3RA2908-1A | For auxiliary circuit connections | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals** | | | | |
| | | Length approx. 200 mm,<br>3.0 mm x 0.5 mm,<br>titanium gray/black,<br>partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.



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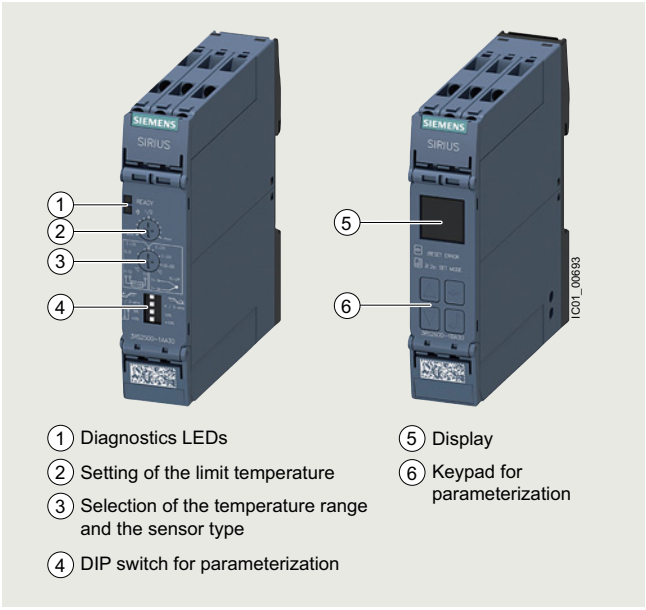
## Overview




SIRIUS 3RS2 temperature monitoring relays

| More information |
|---|
| Homepage, see www.siemens.com/sirius-monitoring-relays |
| Industry Mall, see www.siemens.com/product?3RS2 |
| TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais |
| Conversion tool, see www.siemens.com/conversion-tool |

The 3RS2 temperature monitoring relays can be used to measure temperatures in solid, liquid and gas media. The temperature is acquired by means of sensors in the medium, evaluated by the device and monitored for overshoot, undershoot or location within a specified range (window function).

The family comprises an analog multi-function device which can be set using DIP switches and potentiometers, and digital devices which can be parameterized via an intuitive LC display. The digital device is also available as a version with IO-Link.

All 3RS26 digital devices, including the 3RS28 versions with IO-Link, have safety certification according to IEC 61508/62061 or ISO 13849 up to SIL 1/PL c as well as EN 14597 for heat generating systems and EN 50156 for burners.

Furthermore, the functionality of the 3RS26/3RS28 digital devices can be expanded using a 3RS29 sensor expansion module with two additional resistance sensors, e.g. for monitoring 3-phase motors or transformers.

The 3RS29 sensor expansion module also features an additional relay for outputting the sensor status, and an additional analog input 4 to 20 mA. This analog input allows ATEX applications to be implemented when using an intrinsically safe temperature sensor or other appropriate type of protection. The 3RS29 is connected wirelessly via a SIL 1-certified infrared communications interface.

Notes:

The SIRIUS 3RS2 temperature monitoring relays fully replace the 3RS1 predecessor. The large number of 3RS1 analog devices can simply be replaced with the new 3RS25 analog multi-function device. The reduced variety of order numbers means the successors can be selected quickly and easily.

The 3RS2 digital devices fully supersede the functionality of the 3RS1 predecessor in a single device type that is now able to use resistance sensors and thermocouples – all at half the width of 22.5 mm instead of 45 mm.

***Analog multi-function devices***

SIRIUS 3RS25 analog multi-function device

The analog multi-function device is parameterized using DIP switches and potentiometers. The device can be used to monitor a sensor with a limit value for overshoot or undershoot. The most common temperature ranges with Pt100 resistance sensors or type J or K thermocouples can be used for this purpose. This device can therefore also be used as a compact, easy-to-adjust two-point controller. The relay CO contact output enables loads to be switched directly. The NC contact can optionally be used as a signaling contact.

***Digital devices (1 sensor)***

SIRIUS 3RS26 digital device (1 sensor) with 3RS29 sensor expansion module

The SIRIUS 3RS26 digital device with display enables sensors with two limit values to be monitored using all common resistance sensors and thermocouples.

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## General data

The additional limit value means that, in addition to overshoot and undershoot, an additional warning value can be output to the relay outputs. Alternatively, the second monitoring value can also be used to implement range monitoring. The digital devices can thus also be used as compact two-step or three-step controllers, with Manual RESET or Remote RESET.

Thanks to safety certification, this device can be used in a wide range of applications.

The functionality of the SIRIUS 3RS26 and 3RS28 digital devices can be expanded wirelessly with the sensor expansion module via a SIL 1-certified infrared communications interface.
This combination then features three sensors and is designed for monitoring large 3-phase motors and transformers. It goes without saying that the additional sensors can also be used for other applications.

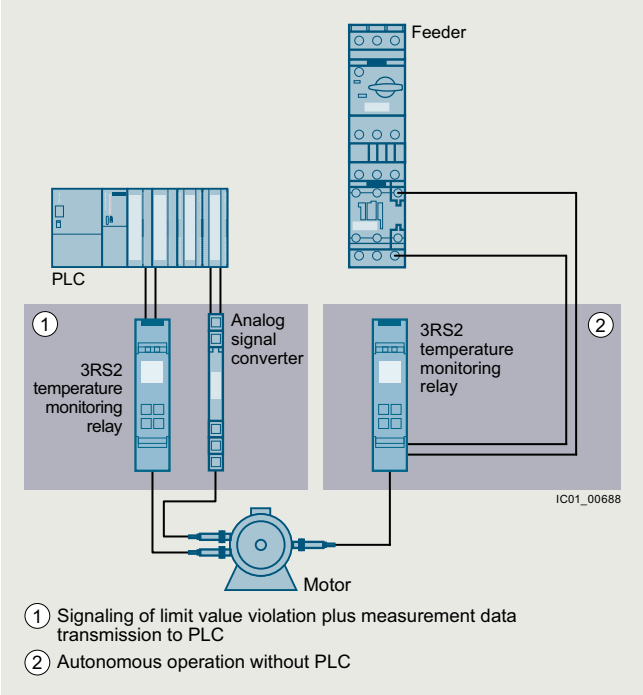
***Digital devices (1 sensor) for IO-Link***

SIRIUS 3RS28 digital device (1 sensor) for IO-Link with 3RS29 sensor expansion module

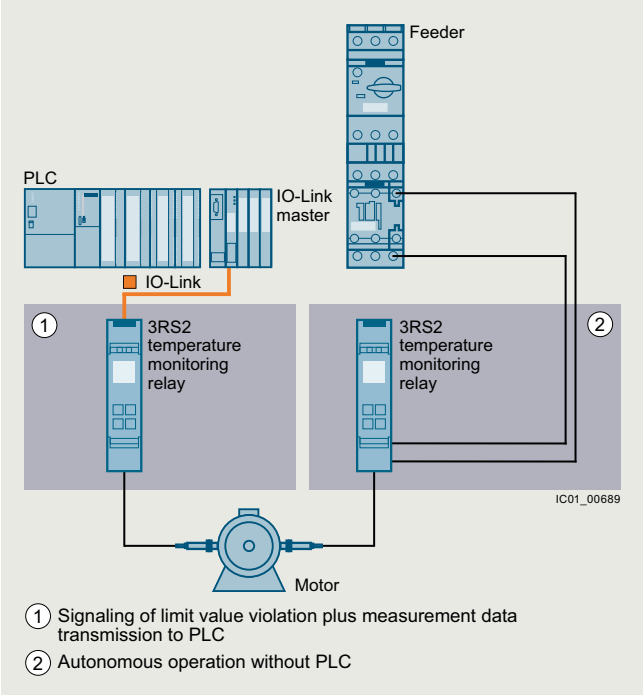
The 3RS28 digital temperature monitoring relays for IO-Link feature an IO-Link communications interface in addition to a display. They include all functions of the 3RS26 digital device and can also be operated on L+/L- as a stand-alone installation with 24 V DC.

Note:

The IO-Link devices can be reset on the display or via IO-Link.




Conventional temperature monitoring relays




Temperature monitoring relays for IO-Link

Notes:

Devices required for communication via IO-Link:

- Any controller that supports IO-Link (e.g. ET 200SP with CPU or S7-1200), see Catalog ST 70.
- IO-Link master (e.g. CM 4xIO-Link for SIMATIC ET 200SP, see page 2/99 or SM 1278 for S7-1200, see page 2/98).

Each monitoring relay requires an IO-Link channel.

Notes on security

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.

For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

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***Article number scheme***

| Product versions | | Article number |
|---|---|---|
| **Temperature monitoring relays** | | **3RS2** □ **0 0 –** □ □ □ □ **0** |
| Device type | e.g. 5 = analogically adjustable | □ |
| Connection type | Screw terminals | **1** |
| | Spring-loaded terminals (push-in) | **2** |
| Number of CO contacts | e.g. A = 1 CO contact, B = 2 CO contacts | □ |
| Rated control supply voltage | A = 24 V AC/DC, W = 24 ... 240 V AC/DC | □ |
| Type of rated control supply voltage | 3 = AC/DC, 4 = DC | □ |
| Example | | **3RS2 5 0 0 – 1 A A 3 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers. For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

- Customary screw and spring-loaded terminals for quick and reliable wiring
- Reduced space requirement in the control cabinet thanks to a consistent width of 22.5 mm
- Easy parameterization thanks to new display and intuitive operating concept
- Reduced stock keeping and logistics thanks to heavily reduced device variance
- Cost savings thanks to additional scalable functionality with integrated infrared interface
- Communication via IO-Link for 3RS28
- Global applicability and exportability thanks to compliance with international standards and certifications
- Problem-free use in a wide range of applications thanks to Safety bundle with certification according to SIL 1/PL c, ATEX, EN 14597 for heat generating systems and EN 50156 for burners
- All versions with removable terminals
- All versions with screw or spring-loaded terminals with push-in functionality

## Application

The SIRIUS 3RS2 temperature monitoring relays can be used in almost any application in which temperature overshoot or undershoot is not permitted, e.g. in the monitoring of set temperature limits and the output of alarm messages for:

- Simple and compact two-point control
- Motor and system protection
- Control cabinet temperature monitoring
- Freeze monitoring
- Temperature limits for process variables e.g. in the packaging industry or electroplating
- Controlling equipment and machines such as heating, climate and ventilation systems, solar collectors, heat pumps or warm water supplies
- Motor, bearing and gear oil monitoring
- Monitoring of coolants

Additionally for digital devices

- Simple and compact two-point or three-point control
- Burner according to EN 50156
- Temperature monitors or temperature limiters[1)] according to EN 14597
- ATEX explosion protection according to EN 50495

[1)] A 3RS29 sensor expansion module with an additional sensor is required for the function as a temperature limiter.

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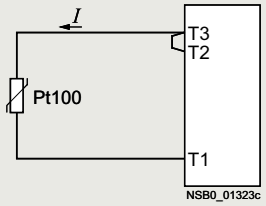
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/25719/td<br>Equipment Manual and internal circuit diagrams, see https://support.industry.siemens.com/cs/ww/en/ps/25719/man | FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/25719/faq |

### *Connection of resistance-type thermometers*

Two-wire measurement

When two-wire temperature sensors are used, the resistances of the sensor and wiring are added. The resulting systematic error must be taken into account when the evaluation unit is calibrated. A jumper must be clamped between terminals T2 and T3 for this purpose.




Wiring errors

The errors that are generated by the wiring comprise approximately 2.5 K/Ω. If the resistance of the cable is not known and cannot be measured, the wiring errors can also be estimated using the following table.

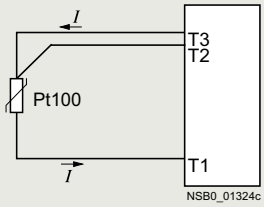
Temperature drift dependent on the length and cross-section of the cable with Pt100 sensors and an ambient temperature of 20 °C, in K:

| Cable length in m | Cross-section mm² | | | |
|---|---|---|---|---|
| | 0.5 | 0.75 | 1 | 1.5 |
| | Temperature drift in K: | | | |
| 0 | 0 | 0 | 0 | 0 |
| 10 | 1.8 | 1.2 | 0.9 | 0.6 |
| 25 | 4.5 | 3.0 | 2.3 | 1.5 |
| 50 | 9.0 | 6.0 | 4.5 | 3.0 |
| 75 | 13.6 | 9.0 | 6.8 | 4.5 |
| 100 | 18.1 | 12.1 | 9.0 | 6.0 |
| 200 | 36.3 | 24.2 | 18.1 | 12.1 |
| 500 | 91.6 | 60.8 | 45.5 | 30.2 |

Example: On a Pt100 sensor with a cable length of 10 m and a conductor cross-section of 1 mm$^2$ the temperature drift equals 0.9 K.

Three-wire measurement

To minimize the effects of the line resistances, a three-wire circuit is often used. Using the additional cable, two measuring circuits can be formed of which one is used as a reference. The evaluation unit can then automatically calculate the line resistance and take it into account.




### *Connection of thermocouples*

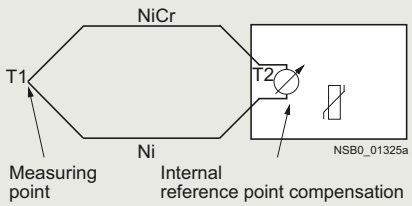
Based on the thermo-electrical effect, a differential temperature measurement will be performed between the measuring point and the evaluation unit.

This principle assumes that the evaluation unit knows the temperature at the clamping point (T2). For this reason, the 3RS2 temperature monitoring relays have an integral reference point compensation that determines this comparison temperature and builds it into the result of the measurement. The thermal sensors and cables must therefore be insulated.

The absolute temperature is therefore calculated from the ambient temperature of the evaluation unit and the temperature difference measured by the thermocouple.

Temperature detection is therefore possible (T1) without needing to know the precise ambient temperature of the clamping point at the evaluation unit (T2).

The connecting cable is only permitted to be extended using compensating lines that are made from the same material as the thermocouple. If a different type of conductor is used, an error will result in the measurement.




For more information, see https://www.ephy-mess.de/en.

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***Principle of operation***

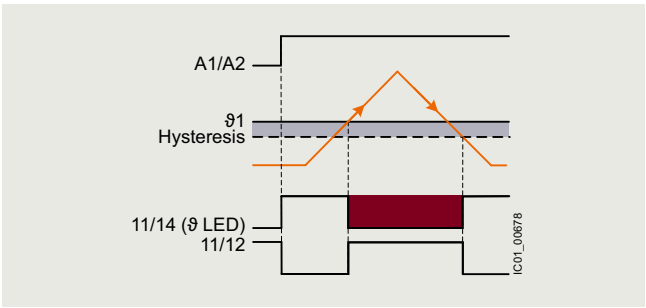
Once the temperature has reached the set threshold value ϑ1, the K1 output relay changes its switching state as soon as the set time *t* has elapsed (K2 responds in the same manner to ϑ2). The delay time can only be adjusted with digital units (on analog units *t* = 0).

When Auto RESET (AUTO RST) is set, the relays return to their original state as soon as the temperature reaches the set hysteresis value.

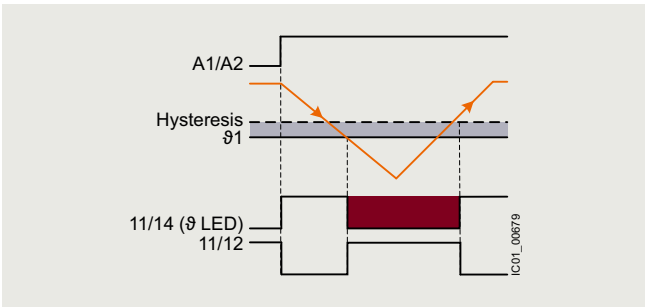
The memory function (MEMORY) allows the status to be saved even in the event of a voltage failure.

***3RS25 analog multi-function devices***

Temperature overshoot



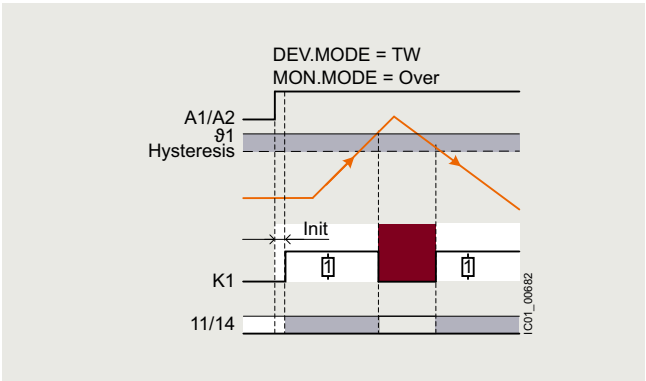

Temperature undershoot



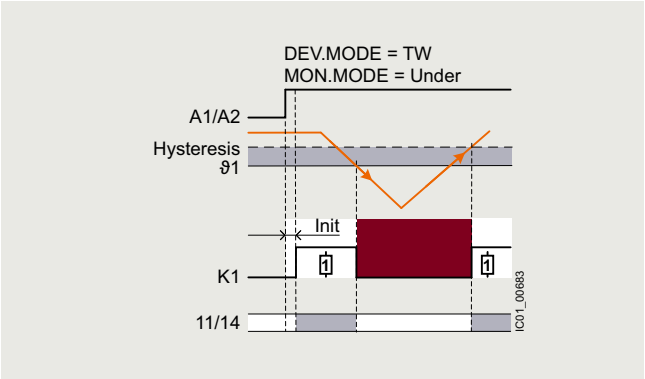

***3RS26, 3RS28 digital devices (1 sensor) with Safety function***

Temperature monitors according to EN 14597

Temperature overshoot

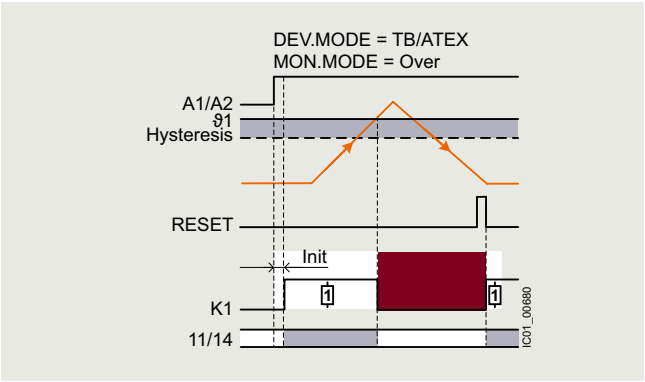



Temperature undershoot

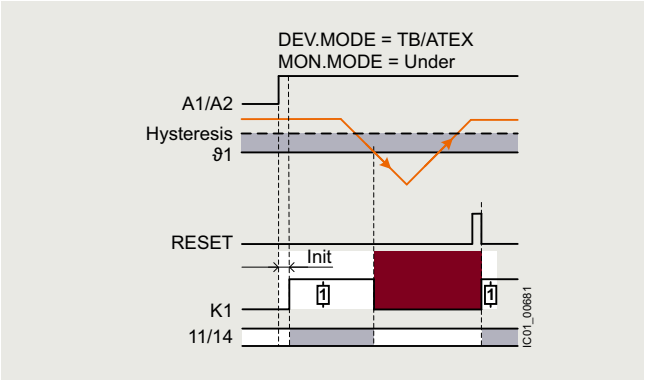



Temperature limiters according to EN 14597/ATEX

Temperature overshoot




Temperature undershoot



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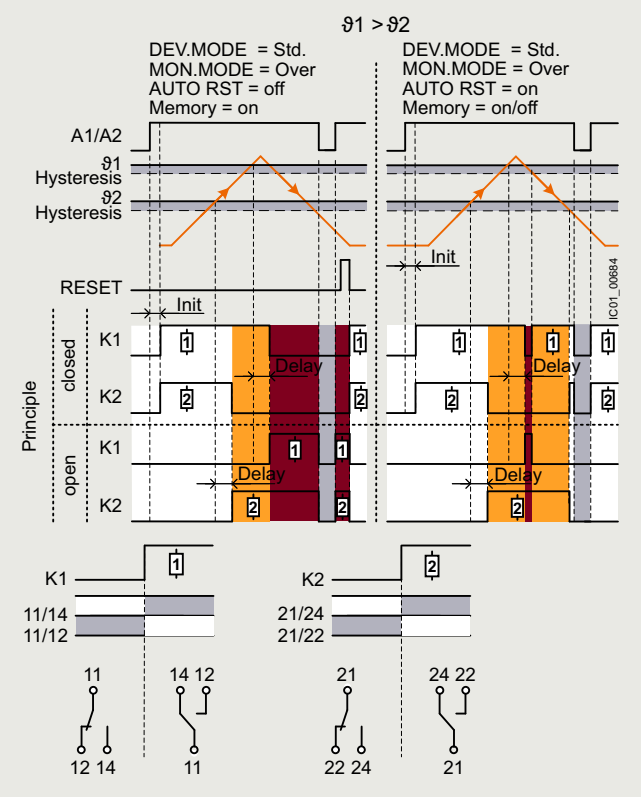
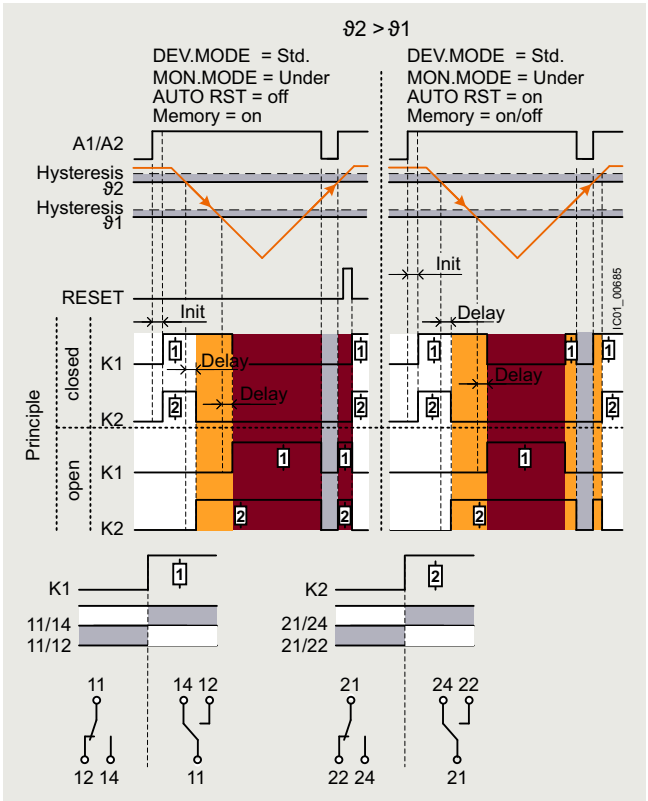
## General data

***3RS26, 3RS28 digital devices (1 sensor)***

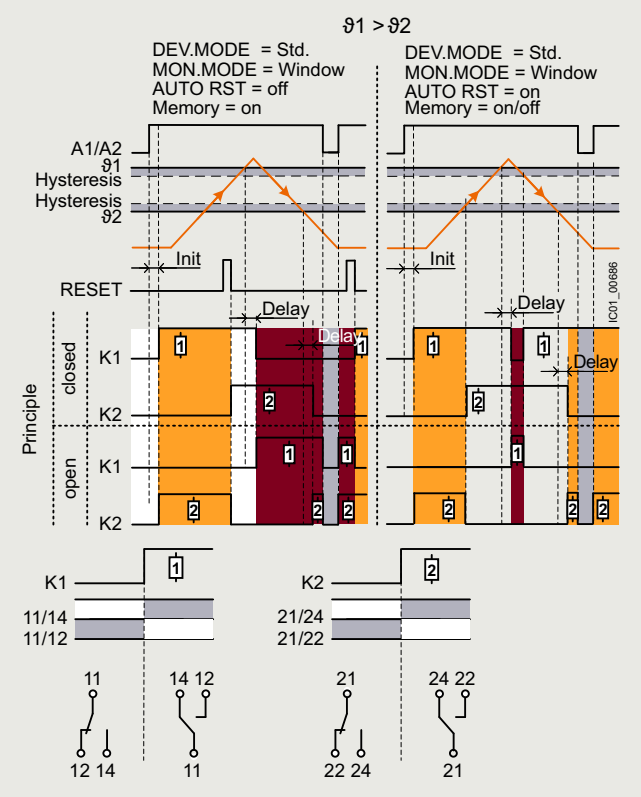
Temperature overshoot



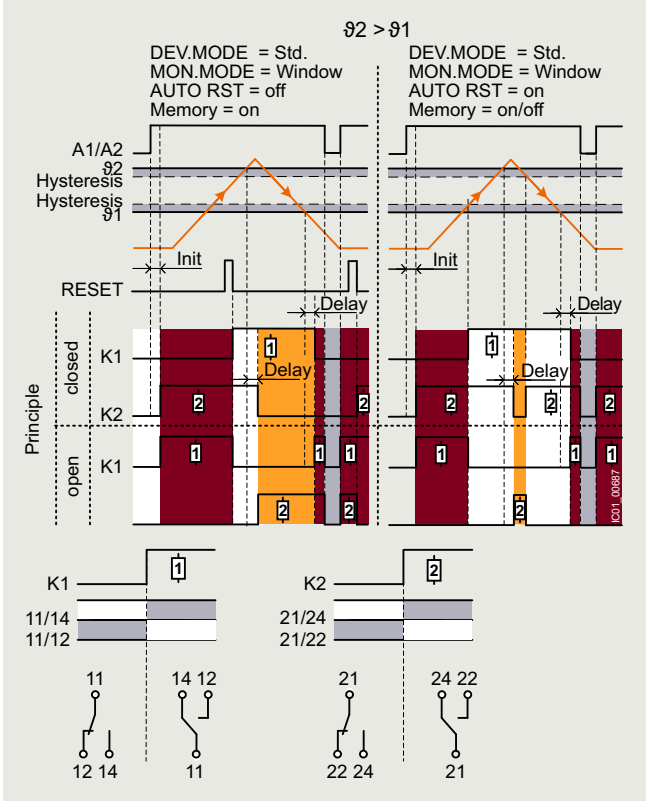

Temperature undershoot




Range monitoring




Range monitoring

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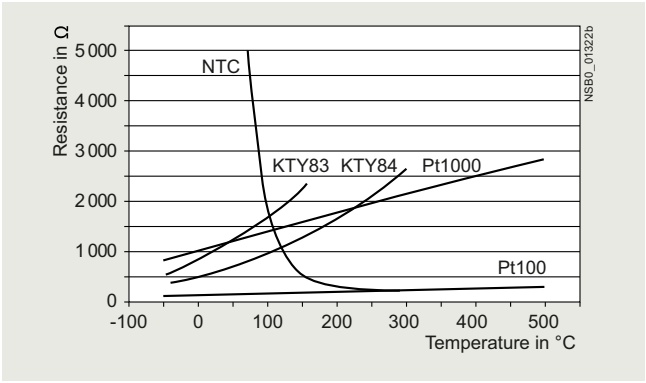
***Characteristic curves***

For resistance sensors




Characteristic curves for resistance sensors

The short-circuit and open-circuit detection as well as the measuring range is limited, depending on the sensor type.

Measuring ranges and switch position for analog devices in °C for Pt100 resistance sensor

| Measuring range in °C | Switch position in °C | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | min. | | | | | 1/2 | | | | | max. |
| 0 ... +100 | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| 0 ... +200 | 0 | 20 | 40 | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 |
| -50 ... +50 | -50 | -40 | -30 | -20 | -10 | 0 | 10 | 20 | 30 | 40 | 50 |

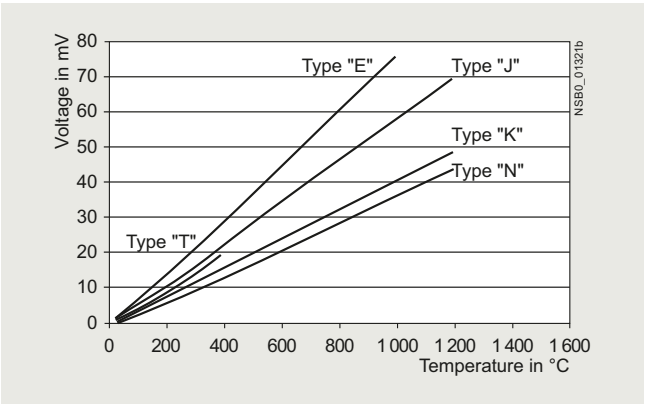
Measuring ranges for digital devices in °C for resistance sensor

| Sensor type | Short circuit | Open circuit | 3RS26, 3RS28 Measuring range in °C | 3RS26, 3RS28 Measuring range in °F |
|---|---|---|---|---|
| Pt100 | ✓ | ✓ | -50 ... +750 | -58 ... +1 382 |
| Pt1000 | ✓ | ✓ | -50 ... +500 | -58 ... +932 |
| KTY83-110 | ✓ | ✓ | -50 ... +175 | -58 ... +347 |
| KTY84 | ✓ | ✓ | -40 ... +300 | -40 ... +572 |
| NTC[1)] | ✓ | -- | +80 ... +160 | +176 ... +320 |

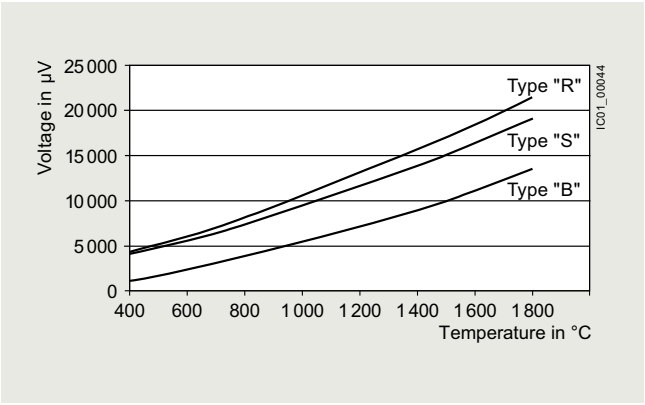
✓ Detection possible
-- Detection not possible

[1)] NTC type: B57227-K333-A1 (100 °C: 1.8 kΩ; 25 °C: 32.762 kΩ).

For thermocouples




Characteristic curves for thermocouples J, K, T, E, N




Characteristic curves for thermocouples S, R and B

Measuring ranges and switch position for analog devices in °C for thermocouple types J, K

| Measuring range in °C | Switch position in °C | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | min. | | | | | 1/2 | | | | | max. |
| 0 ... +200 | 0 | 20 | 40 | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 |
| 0 ... +600 | 0 | 60 | 120 | 180 | 240 | 300 | 360 | 420 | 480 | 540 | 600 |
| +500 ... +1 000 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1 000 |

Measuring ranges for digital devices in °C/°F for thermocouples

| Sensor type | Short circuit | Open circuit | 3RS26, 3RS28 Measuring range in °C | 3RS26, 3RS28 Measuring range in °F |
|---|---|---|---|---|
| J | -- | ✓ | -99 ... +1 200 | -146.2 ... +2 192 |
| K | -- | ✓ | -99 ... +1 350 | -146.2 ... +2 462 |
| T | -- | ✓ | -99 ... +400 | -146.2 ... +752 |
| E | -- | ✓ | -99 ... +999 | -146.2 ... +1 830.2 |
| N | -- | ✓ | -99 ... +1 300 | -146.2 ... +2 372 |
| S | -- | ✓ | 0 ... +1 750 | +32 ... +3 182 |
| R | -- | ✓ | 0 ... +1 750 | +32 ... +3 182 |
| B | -- | ✓ | +400 ... +1 800 | +752 ... +3 272 |

✓ Detection possible
-- Detection not possible

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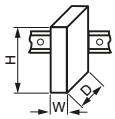
## General data

| Type | | | 3RS25-....0 | 3RS26-....0 | 3RS28-....0 | 3RS29-....0 |
|---|---|---|---|---|---|---|
| **General technical specifications** | | | | | | |
| Dimensions (W x H x D) |  | mm | 22.5 x 100 x 90 | | | |
| **Permissible ambient temperature** | | | | | | |
| • During operation | | °C | -25 ... +60 | | | |
| • During transport | | °C | -40 ... +85 | | | |
| • During storage | | °C | -40 ... +85 | | | |
| **Degree of protection IP** | | | IP20 | | | |
| **Mounting position** | | | Any | | | |
| **Type of mounting** | | | Screw fixing and snap-on mounting on 35 mm DIN-rail | | | |
| **Auxiliary circuit** | | | | | | |
| **Type of voltage** | | | AC/DC | | DC | AC/DC |
| **Operating range factor of the control supply voltage, rated value** | | | | | | |
| • At AC at 50 Hz | | | 0.85 ... 1.1 | | -- | 0.85 ... 1.1 |
| • At AC at 60 Hz | | | 0.85 ... 1.1 | | -- | 0.85 ... 1.1 |
| • At DC | | | 0.85 ... 1.1 | | 0.7 ... 1.25 | 0.85 ... 1.1 |
| **Operating frequency, rated value** | | Hz | 50 ... 60 | | | |
| **Number of measuring circuits** | | | 1 | | | 3 |
| **Number of CO contacts for auxiliary contacts** | | | 1 | 2 | | 0 |
| **Product function** | | | | | | |
| • Removable terminal for auxiliary and control circuit | | | Yes | | | |
| • Auto RESET | | | Yes | | | -- |
| • Fault storage | | | No | Yes | | |
| • External RESET | | | No | Yes | | |
| **ATEX** | | | | | | |
| **Certificate of suitability** | | | | | | |
| • Relative to ATEX | | | No | Yes, with 3RS29 sensor expansion module | | Yes, with 3RS26/3RS28 digital device |
| **Safety Integrity Level (SIL) according to IEC 61508** | | | -- | 1 | | |
| **Performance Level (PL) according to ISO 13849-1** | | | -- | c | | |

| Type | | 3RS2500-1....0<br>3RS2600-1....0<br>3RS2800-1....0<br>3RS2900-1....0 | 3RS2500-2....0<br>3RS2600-2....0<br>3RS2800-2....0<br>3RS2900-2....0 |
|---|---|---|---|
| **Type of electrical connection** | | **Screw terminals** | **Spring-loaded terminals (push-in)** |
| **Tightening torque** | Nm | 0.6 ... 0.8 | -- |
| **Type of connectable conductor cross-sections** | | | |
| • Solid | $mm^2$ | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) | 1 x (0.5 ... 4) |
| • Finely stranded | $mm^2$ | | |
| - Without end sleeves | | -- | 1 x (0.5 ... 4) |
| - With end sleeves | | 1 x (0.5 ... 4), 2 x (0.5 ... 2.5) | 1 x (0.5 ... 2.5) |
| • For AWG cables | AWG | | |
| - Solid | | 1 x (20 ... 12), 2 x (20 ... 14) | 1 x (20 ... 12) |
| - Stranded | | -- | 1 x (20 ... 12) |

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## Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41H

**Multi-unit packaging, see page 16/7.**

| | Number of measuring circuits | Type of sensor/ connectable | Rated control supply voltage $U_s$ 50/60 Hz AC | Suitability for use | Screw terminals Article No. | Screw terminals Price per PU | Spring-loaded terminals (push-in) Article No. | Spring-loaded terminals (push-in) Price per PU |
|---|---|---|---|---|---|---|---|---|
| | | | V | | | | | |
| **Temperature monitoring relays** | | | | | | | | |
| ***Analog multi-function device, 1 sensor, 1 threshold value*** | | | | | | | | |
| 3RS2500-1AA30 | 1 | Resistance sensors: Pt100<br>Thermocouples: Type J, K | 24 AC/DC<br>24 ... 240 AC/DC | --<br>-- | **3RS2500-1AA30**<br>**3RS2500-1AW30** | | **3RS2500-2AA30**<br>**3RS2500-2AW30** | |
| ***Digital device, 1 sensor, 2 threshold values*** | | | | | | | | |
| 3RS2600-1BA30 | 1 | Resistance sensors: Pt100, Pt1000, KTY83-110, KTY84, NTC<br>Thermocouples: Type J, K, T, E, N, S, R, B | 24 AC/DC<br>24 ... 240 AC/DC | --<br>-- | **3RS2600-1BA30**<br>**3RS2600-1BW30** | | **3RS2600-2BA30**<br>**3RS2600-2BW30** | |
| ***Digital device for IO-Link, 1 sensor, 2 threshold values*** | | | | | | | | |
| 3RS2800-1BA40 | 1 | Resistance sensors: Pt100, Pt1000, KTY83-110, KTY84, NTC<br>Thermocouples: Type J, K, T, E, N, S, R, B | 24 DC | -- | **3RS2800-1BA40** | | **3RS2800-2BA40** | |
| **Sensor expansion modules** | | | | | | | | |
| ***2 additional resistance sensors, analog input 4 ... 20 mA, ATEX via analog input, status relay*** | | | | | | | | |
| 3RS2900-1AA30 | 3 | Resistance sensors: Pt100, Pt1000, KTY83-110, KTY84, NTC | 24 AC/DC<br>24 ... 240 AC/DC | For 3RS26/ 3RS28 digital devices | **3RS2900-1AA30**<br>**3RS2900-1AW30** | | **3RS2900-2AA30**<br>**3RS2900-2AW30** | |

Accessories, see page 10/128.

10

* You can order this quantity or a multiple thereof.
Illustrations are approximate

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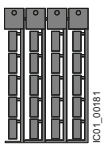
## Accessories

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Terminals for SIRIUS devices in the industrial DIN-rail enclosure** | | | | | | |
| 3ZY1122-1BA00 | **Removable terminals** | **Screw terminals** | | | | |
| | • 2-pole, up to 1 x 4 mm² or 2 x 2.5 mm² | **3ZY1122-1BA00** | | 1 | 6 units | 41L |
| | | **Spring-loaded terminals (push-in)** | | | | |
| | • 2-pole, up to 1 x 4 mm² or 2 x 1.5 mm² (in shared end sleeve) | **3ZY1122-2BA00** | | 1 | 6 units | 41L |
| **Accessories for enclosures** | | | | | | |
| 3ZY1321-2AA00 | **Sealing covers** | | | | | |
| | • 22.5 mm | **3ZY1321-2AA00** | | 1 | 5 units | 41L |
| 3ZY1311-0AA00 | **Push-in lugs** For wall mounting | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| 3ZY1440-1AA00 | **Coding pins** For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; they enable the mechanical coding of terminals | **3ZY1440-1AA00** | | 1 | 12 units | 41L |
| 3ZY1450-1AB00 | **Hinged cover** Replacement cover, without terminal labeling, titanium gray | | | | | |
| | • 22.5 mm wide | **3ZY1450-1AB00** | | 1 | 5 units | 41L |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1] For SIRIUS devices | | | | | |
| | • 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdrivers** For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals (push-in)** | | | | |
| | Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.

For suitable sensors, see www.siemens.com/temperature.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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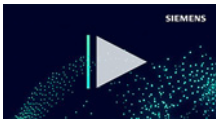
## Overview

SIRIUS 3RN2 thermistor motor protection

**More information**

Homepage, see www.siemens.com/sirius-monitoring-relays
Industry Mall, see www.siemens.com/product?3RN2
TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais
Conversion tool, see www.siemens.com/conversion-tool




Video: SIRIUS 3RN2 thermistor motor protection relays

Thermistor motor protection devices are used for direct monitoring of the motor winding temperature. For this purpose, the motors are equipped with temperature-dependent resistors (PTC) that are directly installed in the motor winding and abruptly change their resistance at their temperature limit.

### *Versions*

SIRIUS 3RN2 thermistor motor protection relays are available in the following versions:

- 3RN2000 compact evaluation unit
- 3RN2010 compact/standard evaluation unit
- 3RN2012-.BW31 bistable evaluation unit
- 3RN2011, 3RN2012-...30, 3RN2013 standard evaluation unit with ATEX approval
- 3RN2023 evaluation unit with ATEX approval and 2 sensor circuits for warning and disconnection

They comply with

- IEC 60947-8 Low-voltage switchgear and controlgear - Part 8: "Control units for built-in thermal protection (PTC) for rotating electrical machines"
- IEC 61000-6-2, IEC 61000-6-4. "Electromagnetic compatibility for industrial-process measurement and control equipment"

The 3RN2 thermistor motor protection relays with ATEX approval fulfill SIL 1 in compliance with EN 50495.

The terminals of the auxiliary contacts are designated in accordance with EN 60947-1.

3RN2 evaluation units are suitable for snap-on mounting on TH 35 DIN rails according to IEC 60715 or for screw fixing using an adapter (accessory).

### *Article number scheme*

| Product versions | | Article number | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Thermistor motor protection relay with PTC sensor, type A** | | **3RN20** | □ | □ | – | □ | □ | □ | □ | □ | |
| Number and version of the sensor circuits | 1 sensor circuit, supply voltage = root voltage | | **0** | | | | | | | | |
| | 1 sensor circuit | | **1** | | | | | | | | |
| | 2 sensor circuits for warning and disconnection | | **2** | | | | | | | | |
| RESET | Auto RESET | | | **0** | | | | | | | |
| | Manual RESET, with open-circuit and short-circuit detection | | | **1** | | | | | | | |
| | Manual/Auto/Remote RESET, non-volatile, with open-circuit and short-circuit detection | | | **2** | | | | | | | |
| | Manual/Auto/Remote RESET, non-volatile, with open-circuit and short-circuit detection, with protective separation | | | **3** | | | | | | | |
| Connection method | Screw terminals | | | | | **1** | | | | | |
| | Spring-loaded terminals (push-in) | | | | | **2** | | | | | |
| Auxiliary switches | 1 CO | | | | | | **A** | | | | |
| | 2 CO | | | | | | **B** | | | | |
| | 1 NO + 1 NC | | | | | | **C** | | | | |
| | 1 NO + 1 CO | | | | | | **D** | | | | |
| | 2 CO, hard gold-plated | | | | | | **G** | | | | |
| Rated control supply voltage | 24 V AC/DC | | | | | | | **A** | **3** | | |
| | 24 ... 240 V AC/DC | | | | | | | **W** | **3** | | |
| Response to failure | Monostable | | | | | | | | | **0** | |
| | Bistable | | | | | | | | | **1** | |
| Example | | **3RN20** | **0** | **0** | **–** | **1** | **A** | **A** | **3** | **0** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

10

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## General data

### Benefits

- Thanks to direct motor protection, overdimensioning of the motors is not necessary
- No settings on the device are necessary
- Solid-state compatible output thanks to versions with hard gold-plated contacts
- Rapid error diagnostics thanks to versions that indicate open and short circuits in the sensor circuit
- All versions with removable terminals
- All versions with screw or spring-loaded terminals with push-in functionality

### Application

Direct motor protection through temperature monitoring of the motor winding offers 100% motor protection even under the most difficult ambient conditions, without the need to make adjustments on the device. Versions with hard gold-plated contacts additionally ensure a switching reliability that is higher than that of an electronic control.

Direct motor protection

- At increased ambient temperatures
- When switching frequency is too high
- When startup and braking procedures are too long

***ATEX approval for operation in hazardous areas***

The SIRIUS 3RN2011, 3RN2012-...30, 3RN2013 and 3RN2023 thermistor motor protection relays for PTC sensors are certified according to ATEX Ex II (2) G and D for environments with explosive gas or dust loads.

***Motor protection using current- and temperature-dependent protective devices***

IEC 60204 stipulates that motors must be protected from overheating at a rating of 0.5 kW and higher. The protection can take the form of overload protection, overtemperature protection or current limiting.

For motors with frequent starting and braking and in environments where cooling may be impaired (e.g. by dust), it is recommended to use the overtemperature protection option in the form of a protective device coordinated with this mode of operation. A good choice in this case is the use of 3RN2 thermistor motor protection devices.

On rotor-critical motors, overtemperature detection in the stator windings can lead to delayed and hence inadequate protection. In this case the standards stipulate additional protection, e.g. by means of an overload relay.

This combination of thermistor motor protection and overload relay is recommended for full motor protection in case of frequent starting and braking of motors, irregular intermittent duty or excessive switching frequency. To prevent premature tripping of the overload relay in such operating conditions, a higher setting than that normally required for the operational current is chosen. The overload relay then performs stall protection, and the 3RN2 thermistor motor protection relay monitors the temperature of the motor windings.

| **Application** | **Motor protection** | | |
|---|---|---|---|
| | Current-dependent only, e.g. with overload relay | Temperature-dependent only, e.g. with thermistor motor protection relay | Current- and temperature-dependent |
| Motor protection in case of | | | |
| Overloading in uninterrupted duty | ✓ | ✓ | ✓ |
| Long startup and braking operations | ❍ | ✓ | ✓ |
| Irregular intermittent duty | ❍ | ✓ | ✓ |
| When switching frequency is too high | ❍ | ✓ | ✓ |
| Single-phase operation and current asymmetry | ✓ | ✓ | ✓ |
| Voltage and frequency fluctuations | ✓ | ✓ | ✓ |
| Stalling of the rotor | ✓ | ✓ | ✓ |
| Switching on a stalled rotor of a stator-critical motor | ✓ | ✓ | ✓ |
| Switching on a stalled rotor of a rotor-critical motor | ✓ | ❍ | ✓ |
| Elevated ambient temperature | -- | ✓ | ✓ |
| Impeded cooling | -- | ✓ | ✓ |

✓ Full protection
❍ Conditional protection
-- No protection

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## Technical specifications

**More information**

Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/24302/td

Operating Instructions and internal circuit diagrams, see https://support.industry.siemens.com/cs/ww/en/ps/24302/man

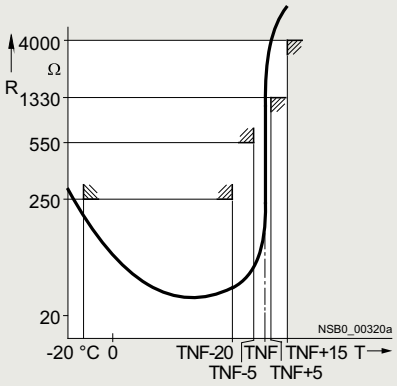
FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/24302/faq

For more information on explosion protection (ATEX), see www.siemens.com/sirius/atex

### *Type A PTC temperature sensor*

If a Type A temperature sensor is connected to a Type A evaluation unit, compliance with the operating temperatures is assured (on pick-up and reset) according to IEC 60947-8.

The characteristic curves of the Type A temperature sensors are described in IEC 60947-8, DIN 44081 and DIN 44082 standards.




Characteristic curve of the 3RN2 evaluation unit

### *Bimetallic switch*

In some applications, bimetallic switches (e.g. Klixon, Thermoclick) are used as sensors instead of PTC temperature sensors. Bimetallic switches are temperature- and current-dependent NC contacts and are available for different temperature ranges. Because bimetallic switches have practically no resistance below their opening temperature, short-circuit detection is not possible when using bimetallic switches. A bimetallic switch can be used for versions 3RN2000 and 3RN2010 on the SIRIUS thermistor motor protection relay.

Note:

Never use bimetallic switches in applications subject to an explosion hazard! Because of their non-standardized tripping characteristic, bimetallic switches must not be used in hazardous applications. Use Type A PTC sensors instead!

### *Use in hazardous areas*

Increased danger in hazardous areas means it is necessary to observe the following notes and standards carefully:

- EN 60079-14/VDE 0165-1 for electrical apparatus for hazardous areas
- EN 60079-17 Explosive atmospheres - Electrical installations inspection and maintenance
- EN 50495 Safety devices required for the safe functioning of equipment with respect to explosion risks

The following SIRIUS 3RN2 thermistor motor protection relays with short-circuit detection are approved for Equipment Group II, Category (2) in Area "G" (areas in which potentially explosive gas, vapor, mist, or air mixtures are present) and are additionally approved for Area "D" (areas containing combustible dust):

- 3RN2011
- 3RN2012-…30
- 3RN2013
- 3RN2023

PTB 15 ATEX 3011 ex II (2) G (Ex e) (EX d) (Ex px)
PTB 15 ATEX 3011 ex II (2) D (Ex t) (Ex p)

For 3RN2 thermistor motor protection relays, the EC type-examination certificate is available for Group II, Category (2) G [Ex e] [Ex d] [Ex px] and D [Ex t] [Ex p]. The number is PTB 15 ATEX 3011.

SIRIUS 3RN2 thermistor motor protection relays are not intended for installation in hazardous areas. If they are installed in a hazardous area, the SIRIUS 3RN2 thermistor motor protection relays must be adapted to the applicable type of protection.

The machine or plant must shut down immediately if the SIRIUS 3RN2 thermistor motor protection relay is tripped, even if connected through a frequency converter. This must be implemented with circuitry.

SIRIUS 3RN2 thermistor motor protection relays with functional safety in accordance with EN 50495 are suitable for protecting explosion-proof motors/machines.

On evaluation units with a supply voltage of 24 V AC/DC, you must ensure electrical separation with a battery network or a power supply unit with electrical separation (e.g. isolating transformer) (does not apply to 3RN2013-.BA30).

A SIRIUS 3RN2 thermistor motor protection relay set to "Automatic RESET" mode will be reset automatically after the recovery time has elapsed, without the RESET button being pressed. An additional ON button has to be used to ensure that the motor does not start up automatically following tripping. "Automatic RESET" mode must not be used in applications where there is a risk of personal injury or damage to property if the motor restarts unexpectedly.

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## General data

**⚠ NOTICE!**

When used in a hazardous area, the thermistor motor protection relay must not be operated with Auto RESET (terminals Y1 and Y2 permanently jumpered).

A risk analysis must be performed for the complete plant or machine. If this analysis yields a lower hazard potential (category 1), all SIRIUS 3RN2 thermistor motor protection relays can be used, provided the safety regulations are observed.

**⚠ WARNING!**

All work involved in connecting, commissioning and maintenance must be carried out by qualified, responsible personnel. Improper handling may result in serious personal injury and considerable damage to property.

***Cable routing***

The measuring circuit leads must be routed as separate control cables. It is not permitted to use cores from the supply line of the motor or any other main supply cables. If extreme inductive or capacitive interference is expected as a result of power lines routed in parallel, shielded control cables must be used.

Maximum length of sensor circuit cables for evaluation units without short-circuit detection in the sensor circuit:

| Cable cross-section | 3RN2000, 3RN2010 |
|---|---|
| 2.5 mm² | 2 x 2 800 m |
| 1.5 mm² | 2 x 1 500 m |
| 0.5 mm² | 2 x 500 m |

Maximum length of sensor circuit cables for evaluation units with short-circuit detection[1]:

| Cable cross-section | 3RN2011, 3RN2012, 3RN2013, 3RN2023 |
|---|---|
| 2.5 mm² | 2 x 250 m |
| 1.5 mm² | 2 x 150 m |
| 0.5 mm² | 2 x 50 m |

[1] A short circuit in the sensor circuit will be detected up to this maximum cable length.

***Principle of operation***

SIRIUS 3RN2 thermistor motor protection relays are thermal protection devices that are suitable, in combination with Type A PTC thermistors, for monitoring temperatures of electrical drives, transformer windings, oils, bearings, air, etc.

The most frequent application is monitoring of three-phase motors in which the motor manufacturer has fitted a PTC sensor into every winding overhang and in which these PTC sensors are connected in series.

The SIRIUS 3RN2 thermistor motor protection relays operate in accordance with the closed-circuit principle and therefore monitor themselves for loss of supply voltage. The exceptions are the warning output on 3RN2023, which always works on the open-circuit principle and the bistable relays of the 3RN2012-.BW31, which always retain the last switching state.

A micro-interruption in the power supply of less than 30 ms does not change the status of the output relays.

For devices with the "Manual RESET" function, the test function can be activated and a trip simulated by pressing the blue Test/RESET button for > 2 seconds.

The 3RN2011, 3RN2012, 3RN2013 and 3RN2023 devices are additionally equipped with open-circuit and short-circuit detection in the sensor circuit. The unit will trip in the event of a short circuit (resistance in sensor circuit < 10 Ω) or open circuit in the sensor circuit (dynamic open-circuit detection). Tripping as the result of a short circuit in the sensor circuit is indicated by a flickering red LED (TRIPPED). In the event of a short circuit in the sensor circuit for warning on the 3RN2023, the yellow warning LED (WARNING) flickers. The devices with dynamic open-circuit detection evaluate the rise time of the sensor circuit resistance. If the sensor circuit resistance rises from 3 300 Ω to 12 kΩ within 200 ms, the unit will not only trip, but also indicate the open circuit via a flashing red LED (TRIPPED) (in the event of an open circuit in a sensor circuit, the yellow warning LED (WARNING) flashes for the 3RN2023).

All evaluation units (except for the 3RN2000 compact evaluation unit) feature electrical separation between the control circuit and the sensor circuit. The relay outputs are also electrically separated from all other circuits. The 3RN2013 and 3RN2023 evaluation units incorporate protective electrical separation between all circuits up to $U_i$ = 300 V.

3RN2000 compact evaluation unit

The compact unit, which is only 17.5 mm wide, is equipped with a red LED (TRIPPED) for the tripped indicator and a changeover contact. After the unit has tripped, it is automatically reset once the thermistors have cooled down. The root of the changeover contact is connected to the control voltage (terminal 11 is connected to terminal A1). This unit is particularly suitable in circuits in which the control circuit and signaling circuit have the same potential, e.g. in local control boxes.

3RN2010, 3RN2011, 3RN2012, 3RN2013 compact/standard evaluation units

The units are equipped with two LEDs (READY and TRIPPED) for an operating and tripped display and are available with either 1 NO + 1 NC contacts (3RN2010, overall width 17.5 mm) or with 2 CO contacts. Depending on the version, they are available with Auto RESET (3RN2010), Manual/Remote RESET (3RN2011) or Manual/Auto and Remote RESET (3RN2012 and 3RN2013). Remote RESET can be achieved by connecting an external pushbutton with a normally-open function to terminals Y1 and Y2. If terminals Y1 and Y2 are jumpered, the unit is automatically reset once the thermistors have cooled down (Auto RESET). 3RN2012 and 3RN2013 are non-volatile. This means a previous trip remains stored in the event of a control supply voltage failure – the thermistor motor protection relay remains in the safe state with an opened output relay until it is intentionally reset by pressing the TEST/RESET button of the unit or an external pushbutton.

3RN2023 "warning and disconnection" evaluation units

Two sensor circuits can be connected to one 3RN2023 evaluation unit that act on two separate output relays with 1 NO contact for warning and 1 CO contact for disconnection. Thermistors with different rated response temperatures TNF are used to implement the "Warning" and "Disconnection" functions. When sensor circuit 2 for "Warning" responds, a yellow LED is lit and when the "Disconnection" circuit responds, a red LED is lit. The sensor circuits have a different reset response and operating behavior: The "Warning" thermistor sensor circuit 2 (terminals 2T1, T2) works only with Auto RESET and according to the open-circuit principle (output relay K2, NO contact). The "Disconnection" thermistor sensor circuit 1 (terminals 1T1, T2) can be changed from Manual RESET to Auto RESET by jumpering terminals Y1 and Y2. Remote RESET is implemented by connecting an external pushbutton with a normally-open function to these terminals.

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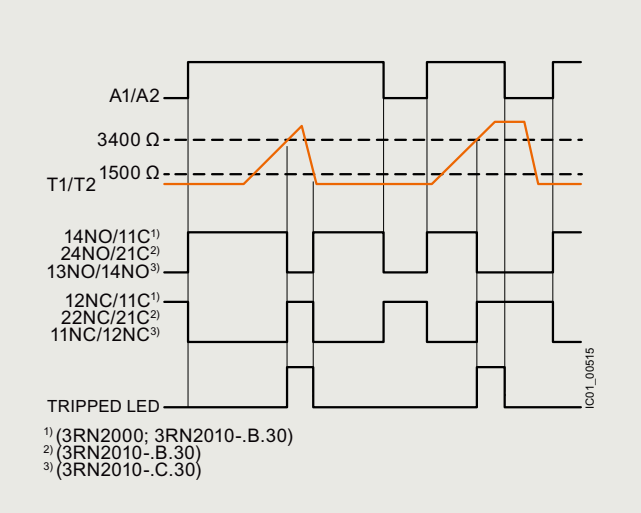
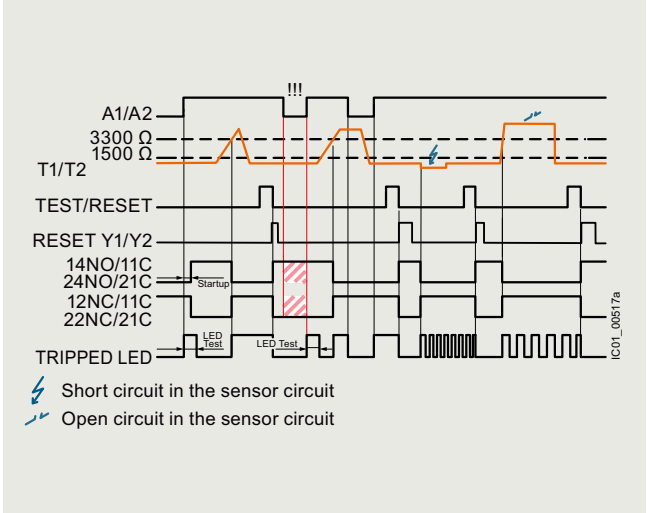
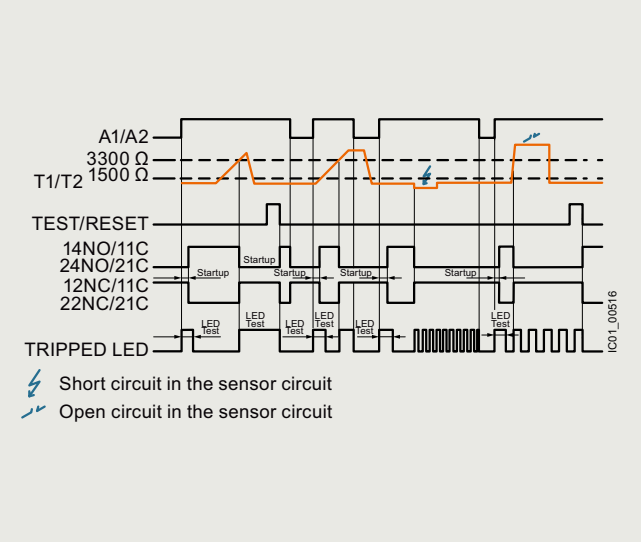
***Function diagrams***



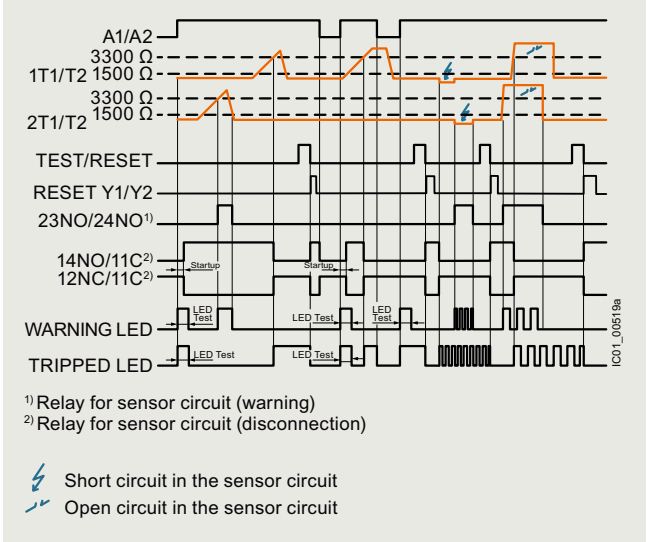

3RN2000, 3RN2010



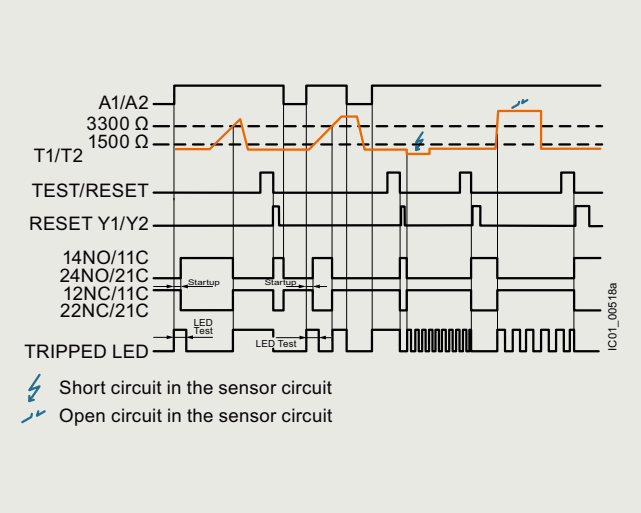

3RN2012-.BW31: resetting via the TEST/RESET button or external pushbutton




3RN2011: resetting via external pushbutton or interruption of the supply voltage




3RN2023: resetting via the TEST/RESET button or external pushbutton




3RN2012-.B.30, 3RN2013: resetting via the TEST/RESET button or external pushbutton

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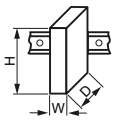
## General data

| Article number | | 3RN2000-.A, 3RN2010-.C | 3RN201.-.B, 3RN2013-.G, 3RN2023-.D |
|---|---|---|---|
| **Dimensions (W x H x D)**  | | 17.5 x 100 x 90 | 22.5 x 100 x 90 |

| Article number | | 3RN2000-.AA30 | 3RN2000-.AW30, 3RN2010-.BW30, 3RN2010-.CW30 | 3RN2010-.BA30, 3RN2010-.CA30 | 3RN2011-.BA30, 3RN2012-.BA30 | 3RN2011-.BW30, 3RN2012-.BW30 | 3RN2012-.BW31 | 3RN2013-.BA30 | 3RN2013-.BW30, 3RN2013-.GW30 | 3RN2023-.DW30 |
|---|---|---|---|---|---|---|---|---|---|---|
| **General technical specifications:** | | | | | | | | | | |
| **Type of electrical separation** | | Without electrical separation | Electrical separation | | | | | Protective separation | | |
| **Electrical endurance (operating cycles) for AC-15 at 230 V** | | 100 000 | | | | | | | | |
| **Mechanical endurance (operating cycles)** | | 10 000 000 | | | | | | | | |
| **Insulation voltage for overvoltage category III to IEC 60664 for pollution degree 3 rated value** | V | 300 | | | | | | | | |
| **Impulse withstand voltage, rated value** | kV | 4 | | | | | | 6 | | |
| **Minimum mains failure buffering time** | ms | 40 | | | | | | | | 30 |
| **Pollution degree** | | 3 | | | | | | | | |
| **Degree of protection IP** | | IP20 | | | | | | | | |
| **Shock resistance according to IEC 60068-2-27** | | 11*g*/15 ms | | | | | | | | |
| **Vibration resistance according to IEC 60068-2-6** | | 10 ... 55 Hz: 0.35 mm | | | | | | | | |
| **Type of mounting**<br>• Mounting position<br>• Installation altitude at height above sea level, maximum | <br><br>m | Screw fixing and snap-on mounting on 35 mm DIN-rail<br>Any<br>2 000 | | | | | | | | |
| **Ambient temperature during operation** | °C | -25 ... +60 | | | | | | | | |
| **Relative humidity during operation, maximum** | % | 70 | | | | | | | | |
| **ATEX** | | | | | | | | | | |
| **Ex device group and Ex category according to ATEX Product Directive 2014/34/EU** | | -- | | | II 2G, II 2D | | -- | II 2G, II 2D | | |
| **Safety device type according to IEC 61508-2** | | -- | | | Type B | | -- | Type B | | |
| **Safety Integrity Level (SIL) according to IEC 61508** | | -- | | | SIL 1 | | -- | SIL 1 | | |
| **Performance Level (PL) according to ISO 13849-1** | | -- | | | c | | -- | c | | |
| **T1 value for proof test interval or service duration according to IEC 61508** | y | -- | | | 3 | | -- | 3 | | |
| **Measuring circuit:** | | | | | | | | | | |
| **Number of measuring circuits** | | 1 | | | | | | | | 2 |
| **Relative measuring accuracy** | % | 9 | | | 2 | | | | | |
| **Maximum number of sensors in series** | | 6 | | | | | | | | |
| **Cable length of sensor, maximum** | m | 2 800 | | | 250 | | | | | |
| **Thermistor resistance response value** | Ω | 1 500 ... 1 650 | | | 1 500 ... 1 550 | | | | | |
| **Thermistor resistance return value** | Ω | 3 400 ... 3 600 | | | 3 300 ... 3 350 | | | | | |

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## General data

| Article number | | 3RN2000-.AA30 | 3RN2000-.AW30, 3RN2010-.BW30, 3RN2010-.CW30 | 3RN2010-.BA30, 3RN2010-.CA30 | 3RN2011-.BA30, 3RN2012-.BA30 | 3RN2011-.BW30, 3RN2012-.BW30 | 3RN2012-.BW31 | 3RN2013-.BA30 | 3RN2013-.BW30, 3RN2013-.GW30 | 3RN2023-.DW30 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Control circuit:** | | | | | | | | | | |
| **Current-carrying capacity of the output relay** | | | | | | | | | | |
| • At AC-15 at 250 V at 50/60 Hz | A | 3 | | | | | | | | |
| • At DC-13 at 24 V | A | 1 | | | | | | | | |
| • At DC-13 at 125 V | A | 0.2 | | | | | | | | |
| • At DC-13 at 250 V | A | 0.1 | | | | | | | | |
| **Thermal current of the non-solid-state contact blocks, maximum** | A | 5 | | | | | | | | |
| **Uninterrupted current of the output relay's DIAZED fuse link** | A | 6 | | | | | | | | |
| **Supply voltage:** | | | | | | | | | | |
| **Control supply voltage** | | | | | | | | | | |
| • At AC | | | | | | | | | | |
| - At 50 Hz rated value | V | 24 ... 24 | 24 ... 240 | 24 ... 24 | | 24 ... 240 | | 24 ... 24 | 24 ... 240 | |
| - At 60 Hz rated value | V | 24 ... 24 | 24 ... 240 | 24 ... 24 | | 24 ... 240 | | 24 ... 24 | 24 ... 240 | |
| • At DC, rated value | V | 24 ... 24 | 24 ... 240 | 24 ... 24 | | 24 ... 240 | | 24 ... 24 | 24 ... 240 | |
| **Operating range factor of the control supply voltage, rated value** | | | | | | | | | | |
| • At AC at 50 Hz | | 0.85 ... 1.1 | | | | | | | | |
| • At AC at 60 Hz | | 0.85 ... 1.1 | | | | | | | | |
| • At DC | | 0.85 ... 1.1 | | | | | | | | |

| Article number | | 3RN20..-1 | 3RN20..-2 |
|---|---|---|---|
| **Type of electrical connection** | | **Screw terminals** | **Spring-loaded terminals (push-in)** |
| **Tightening torque** | Nm | 0.6 ... 0.8 | -- |
| **Type of connectable conductor cross-sections** | | | |
| • Solid | | 1 x (0.5 ... 4 mm²), 2 x (0.5 ... 2.5 mm²) | 1 x (0.5 ... 4 mm²) |
| • Finely stranded/with end sleeve | | 1 x (0.5 ... 4 mm²), 2 x (0.5 ... 1.5 mm²) | 1 x (0.5 ... 2.5 mm²) |
| • For AWG cables | | | |
| - Solid | | 1 x (20 ... 12), 2 x (20 ... 14) | 1 x (20 ... 12) |
| - Stranded | | -- | 1 x (20 ... 12) |

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## Basic units

### Selection and ordering data

Multi-unit packaging, see page 16/7.

3RN2000-1AA30

3RN2010-1BA30

3RN2011-1BA30

3RN2012-1BW30

3RN2023-1DW30

| Product function | Number of CO contacts for auxiliary contacts | Number of NO contacts for auxiliary contacts | Number of NC contacts for auxiliary contacts | Material of switching contacts | Control supply voltage at AC at 50 Hz, rated value | Control supply voltage at DC rated value | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | V | V | | | | | |
| **Compact evaluation unit, suitable for bimetallic switch** | | | | | | | | | | | |
| **Terminal A1 jumpered with root of changeover contact** | | | | | | | | | | | |
| Auto RESET | 1 | 0 | 0 | AgSnO2 | 24 ... 24 | 24 ... 24 | **3RN2000-□AA30** | | 1 | 1 unit | 41H |
| | | | | | 24 ... 240 | 24 ... 240 | **3RN2000-□AW30** | | 1 | 1 unit | 41H |
| | 0 | 1 | 1 | AgSnO2 | 24 ... 24 | 24 ... 24 | **3RN2010-□CA30** | | 1 | 1 unit | 41H |
| | | | | | 24 ... 240 | 24 ... 240 | **3RN2010-□CW30** | | 1 | 1 unit | 41H |
| **Standard evaluation unit, suitable for bimetallic switch** | | | | | | | | | | | |
| Auto RESET | 2 | 0 | 0 | AgSnO2 | 24 ... 24 | 24 ... 24 | **3RN2010-□BA30** | | 1 | 1 unit | 41H |
| | | | | | 24 ... 240 | 24 ... 240 | **3RN2010-□BW30** | | 1 | 1 unit | 41H |
| **Bistable evaluation unit, open-circuit and short-circuit detection in the sensor circuit** | | | | | | | | | | | |
| **Does not trigger in the event of control supply voltage failure** | | | | | | | | | | | |
| Auto RESET, Manual RESET, External RESET, Fault storage | 2 | 0 | 0 | AgSnO2 | 24 ... 240 | 24 ... 240 | **3RN2012-□BW31** | | 1 | 1 unit | 41H |
| **Standard evaluation unit with ATEX approval, open-circuit and short-circuit detection in the sensor circuit[1)]** | | | | | | | | | | | |
| Manual RESET, External RESET | 2 | 0 | 0 | AgSnO2 | 24 ... 24 | 24 ... 24 | **3RN2011-□BA30** | | 1 | 1 unit | 41H |
| | | | | | 24 ... 240 | 24 ... 240 | **3RN2011-□BW30** | | 1 | 1 unit | 41H |
| **Non-volatile[3)]** | | | | | | | | | | | |
| Auto RESET, Manual RESET, External RESET, Fault storage | 2[4)] | 0 | 0 | AgSnO2 | 24 ... 24 | 24 ... 24 | **3RN2012-□BA30** | | 1 | 1 unit | 41H |
| | | | | | 24 ... 240 | 24 ... 240 | **3RN2012-□BW30** | | 1 | 1 unit | 41H |
| **Protective separation, non-volatile [2)3)]** | | | | | | | | | | | |
| Auto RESET, Manual RESET, External RESET, Fault storage | 2 | 0 | 0 | AgSnO2 | 24 ... 24 | 24 ... 24 | **3RN2013-□BA30** | | 1 | 1 unit | 41H |
| | | | | | 24 ... 240 | 24 ... 240 | **3RN2013-□BW30** | | 1 | 1 unit | 41H |
| | | | | AgSnO2 Hard gold-plated | 24 ... 240 | 24 ... 240 | **3RN2013-□GW30** | | 1 | 1 unit | 41H |
| **Evaluation unit with ATEX approval and 2 sensor circuits for warning and disconnection, open-circuit and short-circuit detection in both sensor circuits** | | | | | | | | | | | |
| **Protective separation, non-volatile [2)3)]** | | | | | | | | | | | |
| Auto RESET, Manual RESET, External RESET, Fault storage | 1 | 1 | 0 | AgSnO2 | 24 ... 240 | 24 ... 240 | **3RN2023-□DW30** | | 1 | 1 unit | 41H |

**Type of electrical connection**

- Screw terminals → 1
- Spring-loaded terminals (push-in) → 2

1) For 3RN2011: The unit can be reset with the RESET button or by disconnecting the control supply voltage.

2) Protective separation up to 300 V according to DIN/VDE 0160, IEC 60947-1.

3) Protection against voltage failure or non-volatile fault storage means that previous tripping due to a fault remains stored even if the control supply voltage fails. The monitoring device is not reset if the voltage fails. With an active fault, meaning a fault which has not been manually confirmed, an automatic restart of the plant upon recovery of the power is prevented therefore and plant safety increased as the result.

4) Setting of output contacts in as-supplied state not defined (bistable relay). Application of the control supply voltage once results in contact changeover to the correct setting.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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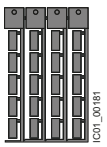
## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Terminals for SIRIUS devices in the industrial DIN-rail enclosure** | | | | | |
| 3ZY1122-1BA00 **Removable terminals** | **Screw terminals** | | | | |
| • 2-pole, up to 1 x 4 mm² or 2 x 2.5 mm² | **3ZY1122-1BA00** | | 1 | 6 units | 41L |
| | **Spring-loaded terminals (push-in)** | | | | |
| • 2-pole, up to 1 x 4 mm² or 2 x 1.5 mm² (in shared end sleeve) | **3ZY1122-2BA00** | | 1 | 6 units | 41L |
| **Accessories for enclosures** | | | | | |
| 3ZY1311-0AA00 **Push-in lugs** For wall mounting | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| 3ZY1440-1AA00 **Coding pins** For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; enable the mechanical coding of terminals | **3ZY1440-1AA00** | | 1 | 12 units | 41L |
| **Hinged cover** Replacement cover, without terminal labeling, titanium gray | | | | | |
| • 17.5 mm wide | **3ZY1450-1AA00** | | 1 | 5 units | 41L |
| • 22.5 mm wide | **3ZY1450-1AB00** | | 1 | 5 units | 41L |
| 3ZY1450-1AB00 | | | | | |
| **Blank labels** | | | | | |
|  3RT2900-1SB20 **Unit labeling plates**[1] For SIRIUS devices | | | | | |
| • 10 mm x 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| • 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | |
| 3RA2908-1A **Screwdrivers** For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals (push-in)** | | | | |
| Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.

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## SIRIUS 3RS70 signal converters

### Overview

SIRIUS 3RS70 signal converters

**More information**

Homepage, see www.siemens.com/sirius-coupling-relays
Industry Mall, see www.siemens.com/product?3RS70
TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SIRIUSRelais
Conversion tool, see www.siemens.com/conversion-tool

Signal converters perform the coupling function for analog signals on both the input side and the output side. They are indispensable when processing analog values with electronic controls. Under harsh industrial conditions in particular, it is often necessary to transmit analog signals over long distances. Electrical separation is then needed as a result of the different power supplies. The resistance of the wiring causes potential differences and losses which must be prevented.

Electromagnetic disturbance and overvoltages can affect the signals on the input side in particular or even destroy the analog modules. All terminals of the 3RS70 signal converters are safe up to a voltage of 30 V DC and protected against switching poles. Short-circuit protection is an especially important function for the outputs.

The devices are EMC-tested according to

- IEC 61000-6-4 (generic standard for emitted interference)
- IEC 61000-6-2 (generic standard for interference immunity)

The analog signals comply with

- IEC 60381-1/2

***Article number scheme***

| Product versions | | Article number | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Signal converters** | | **3RS70** | □ | □ | – | □ | □ | □ | **0** | **0** | |
| Product function/ type of input signal | Single-range converters, active | | **0** | **0** | | | | | | | 3-way separation, input 0 ... 10 V |
| | | | **0** | **2** | | | | | | | 3-way separation, input 0 ... 20 mA |
| | | | **0** | **3** | | | | | | | 3-way separation, input 4 ... 20 mA |
| | Multi-range converters, active, switchable | | **0** | **5** | | | | | | | 3-way separation, 3 standard signals can be switched 0 ... 10 V, 0/4 ... 20 mA |
| | Universal converters, active, switchable | | **0** | **6** | | | | | | | 3-way separation, 16 signals can be switched |
| | Single-range converters, passive | | **2** | **0** | | | | | | | 2-way separation, 4 ... 20 mA |
| | Multi-range converters, active, switchable | | **2** | **5** | | | | | | | 3-way separation, with manual/automatic switch and setting potentiometer |
| Connection type | Screw terminals | | | | | **1** | | | | | |
| | Spring-loaded terminals (push-in) | | | | | **2** | | | | | |
| Type of output signal | 0 ... 10 V | | | | | | **A** | | | | |
| | 0 ... 20 mA | | | | | | **C** | | | | |
| | 4 ... 20 mA | | | | | | **D** | | | | |
| | Loop power isolator 4 ... 20 mA | | | | | | **E** | | | | |
| | 3 standard signals can be switched | | | | | | **F** | | | | |
| | 4 frequencies can be switched | | | | | | **K** | | | | |
| Supply voltage | 24 V AC/DC | | | | | | | **E** | | | |
| | None | | | | | | | **T** | | | |
| | 24 ... 240 V AC/DC | | | | | | | **W** | | | |
| Example | | **3RS70** | **0** | **0** | **–** | **1** | **A** | **E** | **0** | **0** | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Benefits

- Narrow width
- Easy-to-set universal converters
- Converters with frequency output
- All ranges are fully calibrated
- Universal family of devices – the perfect solution for every application
- Integrated manual/automatic switch with a setpoint generator
- Outputs are short-circuit proof
- Up to 30 V – protected against damage caused by wiring errors

## Application

Signal converters are used in analog signal processing for

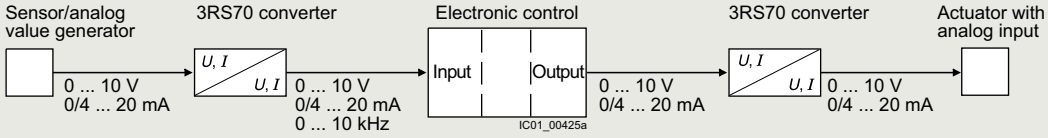
- Electrical separation
- Conversion of normalized and non-normalized signals
- Amplification and impedance adaptation
- Conversion to a frequency for processing by a digital input
- Overvoltage and EMC protection
- Short-circuit protection of the outputs

***3RS7025 manual/automatic converter***

For special applications in which analog signals have to be simulated, or during plant commissioning when the actual process value is not yet available, the 3RS7025 devices feature a setting potentiometer for manual setpoint selection and a manual/automatic switch.

The potentiometer for the 3RS7025 devices is used to simulate analog output signals when the changeover switch is set to "Manual" and the control supply voltage is applied, without the need for an analog input signal. The scale ranges from 0 to 100%.

Example: When it is set for an output of 4 to 20 mA, the left stop on the potentiometer represents an output current of 4 mA and the right stop represents an output current of 20 mA. In the "Auto" switch position, the output signal follows the input signal proportionally regardless of the potentiometer setting.




Application example of analog signal processing

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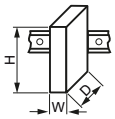
## Technical specifications

| More information | |
|---|---|
| Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16691/td<br>Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/view/109475738 | Internal circuit diagrams, see https://support.industry.siemens.com/cs/ww/en/view/109475738 |

| Article number | | 3RS7000-.AE00 | 3RS7002-.AE00, 3RS7003-.AE00 | 3RS7000-.CE00, 3RS7000-.DE00 | 3RS7002-.CE00, 3RS7002-.DE00, 3RS7003-.CE00, 3RS7003-.DE00 | 3RS7020-.ET00 |
|---|---|---|---|---|---|---|
| Product designation<br>Product version | | Single-range converters, active | | | | Single-range converters, passive |
| **General data:** | | | | | | |
| **Dimensions (W x H x D)**  | | 6.2 x 93 x 72.5 | | | | 6.2 x 93 x 71 |
| **Ambient temperature**<br>• During operation<br>• During storage | <br>°C<br>°C | <br>-25 ... +60<br>-40 ... +80 | | | | |
| **Relative humidity during operation** | % | 10 ... 95 | | | | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3, rated value** | V | 50 | | | | |
| **Active power input** | W | 0.29 | | | | -- |
| **Degree of protection** | | IP20 | | | | |
| **Input:** | | | | | | |
| **Input voltage**<br>• Max. | <br>V | <br>30 | | | | |
| **Input impedance**<br>• Of current input, maximum<br>• Of voltage input, minimum | <br>Ω<br>kΩ | <br>--<br>330 | <br>100<br>-- | <br>--<br>330 | <br>100<br>-- | |
| **Output:** | | | | | | |
| **Load**<br>• Maximum at current output<br>• Minimum at voltage output | <br>Ω<br>kΩ | <br>--<br>2 | | <br>500<br>-- | | <br>1000<br>-- |
| **Relative measuring accuracy** | % | 0.1 | | | | |
| **Short-circuit-proof** | | Yes | | | | No |

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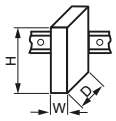
| Article number | | 3RS7005-.FE00 | 3RS7005-.KE00 | 3RS7005-.FW00 | 3RS7005-.KW00 | 3RS7025-.FE00 | 3RS7025-.FW00 |
|---|---|---|---|---|---|---|---|
| Product designation<br>Product version | | Multi-range converters, active, switchable | | | | Multi-range converters, active, switchable, with manual/automatic switch and setting potentiometer | |
| **General data:** | | | | | | | |
| **Dimensions (W x H x D)**  | | 6.2 x 93 x 72.5 | | 17.5 x 93 x 72.5 | | 17.5 x 93 x 75 | |
| **Ambient temperature** | | | | | | | |
| • During operation | °C | -25 ... +60 | | | | | |
| • During storage | °C | -40 ... +80 | | | | | |
| **Relative humidity during operation** | % | 10 ... 95 | | | | | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3, rated value** | V | 50 | | 300 | | 50 | 300 |
| **Active power input** | W | 0.29 | | 0.5 | 0.34 | 0.5 | |
| **Degree of protection** | | IP20 | | | | | |
| **Input:** | | | | | | | |
| **Input voltage** | | | | | | | |
| • Max. | V | 30 | | | | | |
| **Input impedance** | | | | | | | |
| • Of current input, maximum | Ω | 100 | | | | | |
| • Of voltage input, minimum | kΩ | 330 | | | | | |
| **Output:** | | | | | | | |
| **Load** | | | | | | | |
| • Maximum at current output | Ω | 500 | -- | 500 | -- | 500 | |
| • Minimum at voltage output | kΩ | 2 | -- | 2 | -- | 2 | |
| **Relative measuring accuracy** | % | 0.1 | | | | | |
| **Short-circuit-proof** | | Yes | | | | | |

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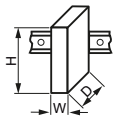
## SIRIUS 3RS70 signal converters

| Article number | | 3RS7006-.FE00 | 3RS7006-.FW00 |
|---|---|---|---|
| Product designation<br>Product version | | Universal converters,<br>active, switchable | |
| **General data:** | | | |
| **Dimensions (W x H x D)**  | | 17.5 x 93 x 72.5 | |
| **Ambient temperature**<br>• During operation<br>• During storage | <br>°C<br>°C | <br>-25 ... +60<br>-40 ... +80 | |
| **Relative humidity during operation** | % | 10 ... 95 | |
| **Insulation voltage for overvoltage category III according to IEC 60664 for pollution degree 3, rated value** | V | 50 | 300 |
| **Active power input** | W | 0.5 | |
| **Degree of protection** | | IP20 | |
| **Input:** | | | |
| **Input voltage**<br>• Max. | <br>V | <br>30 | |
| **Input impedance**<br>• Of current input, maximum<br>• Of voltage input, minimum | <br>Ω<br>kΩ | <br>100<br>330 | |
| **Output:** | | | |
| **Load**<br>• Maximum at current output<br>• Minimum at voltage output | <br>Ω<br>kΩ | <br>500<br>2 | |
| **Relative measuring accuracy** | % | 0.1 | |
| **Short-circuit-proof** | | Yes | |

| Article number | 3RS70..-1.... | 3RS70..-2.... |
|---|---|---|
| **Type of electrical connection** | **Screw terminals** | **Spring-loaded terminals (push-in)** |
| **Type of connectable conductor cross-sections**<br>• Solid<br>• Finely stranded<br>- Without end sleeves<br>- With end sleeves<br>• Solid for AWG cables | <br>1 x (0.25 ... 2.5 mm²)<br><br>--<br>1 x (0.25 ... 1.5 mm²)<br>1 x (20 ... 14) | <br>1 x (0.25 ... 2.5 mm²)<br><br>1 x (0.25 ... 2.5 mm²)<br>1 x (0.25 ... 1.5 mm²)<br>1 x (20 ... 14) |

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## Selection and ordering data

| Signal type at the input | Signal type at the output | Supply voltage | Width mm | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Single-range converters** | | | | | | | | |
| ***Passive*** | | | | | | | | |
| **Type of electrical separation, 2-way** | | | | | | | | |
| 4 ... 20 mA | 4 ... 20 mA | -- | 6.2 | **3RS7020-☐ET00** | | 1 | 1 unit | 41H |
| ***Active*** | | | | | | | | |
| **Type of electrical separation, 3-way** | | | | | | | | |
| 0 ... 10 V | 0 ... 10 V | 24 V AC/DC | 6.2 | **3RS7000-☐AE00** | | 1 | 1 unit | 41H |
| 0 ... 20 mA | 0 ... 10 V | 24 V AC/DC | 6.2 | **3RS7002-☐AE00** | | 1 | 1 unit | 41H |
| 4 ... 20 mA | 0 ... 10 V | 24 V AC/DC | 6.2 | **3RS7003-☐AE00** | | 1 | 1 unit | 41H |
| 0 ... 10 V | 0 ... 20 mA | 24 V AC/DC | 6.2 | **3RS7000-☐CE00** | | 1 | 1 unit | 41H |
| 0 ... 20 mA | 0 ... 20 mA | 24 V AC/DC | 6.2 | **3RS7002-☐CE00** | | 1 | 1 unit | 41H |
| 4 ... 20 mA | 0 ... 20 mA | 24 V AC/DC | 6.2 | **3RS7003-☐CE00** | | 1 | 1 unit | 41H |
| 0 ... 10 V | 4 ... 20 mA | 24 V AC/DC | 6.2 | **3RS7000-☐DE00** | | 1 | 1 unit | 41H |
| 0 ... 20 mA | 4 ... 20 mA | 24 V AC/DC | 6.2 | **3RS7002-☐DE00** | | 1 | 1 unit | 41H |
| 4 ... 20 mA | 4 ... 20 mA | 24 V AC/DC | 6.2 | **3RS7003-☐DE00** | | 1 | 1 unit | 41H |
| **Multi-range converters** | | | | | | | | |
| ***Active, switchable*** | | | | | | | | |
| **Type of electrical separation, 3-way** | | | | | | | | |
| 0 ... 10 V,<br>0 ... 20 mA,<br>4 ... 20 mA | 0 ... 10 V,<br>0 ... 20 mA,<br>4 ... 20 mA | 24 V AC/DC | 6.2 | **3RS7005-☐FE00** | | 1 | 1 unit | 41H |
| | | 24 ... 240 V AC/DC | 17.5 | **3RS7005-☐FW00** | | 1 | 1 unit | 41H |
| | 0 ... 50 Hz<br>0 ... 100 Hz<br>0 ... 1 kHz<br>0 ... 10 kHz | 24 V AC/DC | 6.2 | **3RS7005-☐KE00** | | 1 | 1 unit | 41H |
| | | 24 ... 240 V AC/DC | 17.5 | **3RS7005-☐KW00** | | 1 | 1 unit | 41H |
| ***Active, switchable, with manual/automatic switch and setting potentiometer*** | | | | | | | | |
| **Type of electrical separation, 3-way** | | | | | | | | |
| 0 ... 10 V,<br>0 ... 20 mA,<br>4 ... 20 mA | 0 ... 10 V,<br>0 ... 20 mA,<br>4 ... 20 mA | 24 V AC/DC | 17.5 | **3RS7025-☐FE00** | | 1 | 1 unit | 41H |
| | | 24 ... 240 V AC/DC | 17.5 | **3RS7025-☐FW00** | | 1 | 1 unit | 41H |
| **Universal converters** | | | | | | | | |
| ***Active, switchable*** | | | | | | | | |
| **Type of electrical separation, 3-way** | | | | | | | | |
| 0 ... 60 mV,<br>0 ... 100 mV,<br>0 ... 300 mV,<br>0 ... 500 mV,<br>0 ... 1 V,<br>0 ... 2 V,<br>0 ... 5 V,<br>0 ... 10 V,<br>0 ... 20 V,<br>2 ... 10 V,<br>0 ... 5 mA,<br>0 ... 10 mA,<br>0 ... 20 mA,<br>4 ... 20 mA,<br>-5 ... +5 mA,<br>-20 ... +20 mA | 0 ... 10 V,<br>0 ... 20 mA,<br>4 ... 20 mA | 24 V AC/DC | 17.5 | **3RS7006-☐FE00** | | 1 | 1 unit | 41H |
| | | 24 ... 240 V AC/DC | 17.5 | **3RS7006-☐FW00** | | 1 | 1 unit | 41H |

3RS7000-1AE00

3RS7000-2AE00

3RS7005-1FW00

3RS7006-1FE00

**Type of electrical connection**

- Screw terminals
- Spring-loaded terminals (push-in)

1
2

10

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## SIRIUS 3RS70 signal converters

### Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Galvanic isolation plates** | | | | | | |
| 3RQ3900-0A | **Galvanic isolation plates**<br>For electrical separation of different potentials when devices of different types are installed side by side | **3RQ3900-0A** | | 1 | 10 units | 41H |
| **Connecting combs** | | | | | | |
| 3RQ3901-0B | **Connecting combs**<br>For linking the same potentials, current-carrying capacity for infeed of max. 6 A | | | | | |
| | • 2-pole | **3RQ3901-0A** | | 1 | 10 units | 41H |
| | • 4-pole | **3RQ3901-0B** | | 1 | 10 units | 41H |
| | • 8-pole | **3RQ3901-0C** | | 1 | 10 units | 41H |
| | • 16-pole | **3RQ3901-0D** | | 1 | 10 units | 41H |
| **Clip-on labels** | | | | | | |
| | **Clip-on labels**<br>For terminal and equipment labeling, white | | | | | |
| | • 5 x 5 mm[1)] | **3RQ3902-0A** | | 100 | 2000 units | 41H |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals (push-in)** | | | | |
| | Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: Conta-Clip Verbindungstechnik GmbH, see page 16/18.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Price groups**
PG 41B, 41H, 41L, 42B, 42C, 42F, 42J

11/2 **Introduction**

**Safety relays**
SIRIUS 3SK safety relays
11/13 General data
Basic units
11/22 - SIRIUS 3SK1 Standard basic units
11/23 - SIRIUS 3SK1 Advanced basic units
11/24 - SIRIUS 3SK2 basic units
Expansion units
11/26 - Output expansions
11/28 - Input expansions
11/29 Accessories
SIRIUS 3TK28 safety relays
11/33 With special functions
11/35 Accessories

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## Overview

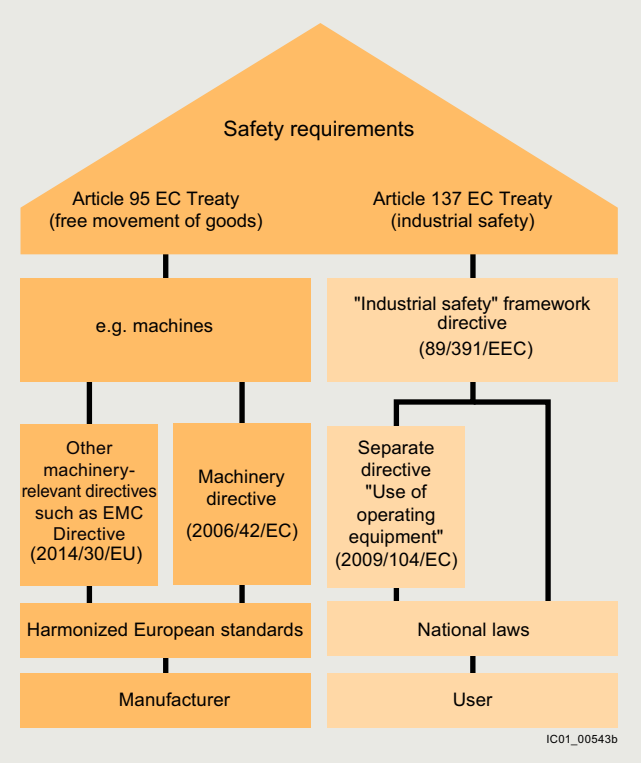
### *Functional safety of machines and plants – Basic safety requirements in the manufacturing industry*

In order to protect people and the environment in many industrial applications in the manufacturing and process industries, machines and plants must meet the fundamental safety requirements of the EU Directives, particularly the Machinery Directive. In addition to design solutions, automation systems and components are also expected to perform safety-related tasks. This means that the life and health of people and the physical integrity of capital goods and the environment depend on the proper operation of these systems and components, on "functional safety".

With the introduction of the uniform European Single Market, national standards and regulations affecting the technical realization of machines were consistently harmonized. This involved defining basic safety requirements which address, on the one hand, machine manufacturers in terms of the free movement of goods (Article 95) and, on the other hand, users in terms of industrial safety (Article 137).

The EU directives:

- Define requirements which must be met by plants and their operating companies in order to protect the health of people and the quality of the environment
- Include standards for health & safety at work (minimum requirements)
- Define product requirements (e.g. for machines) to protect the health and safety of consumers
- Differentiate between the requirements which must be met for the implementation of products in order to ensure the free movement of goods and the requirements which must be met for the use of products




Safety requirements imposed on machines and plants

### *Objective of the standards*

It is the objective of safety technology to minimize as far as possible the hazards from technical facilities for people and the environment while restricting no more than absolutely necessary the scope of industrial production, the use of machines or the production of chemical products.

Production automation is governed in particular by the following standards:

- IEC 62061 and
- ISO 13849-1

The IEC 62061 standard

The IEC 62061 standard "Safety of machines – Functional safety of electrical, electronic and programmable electronic control systems" defines comprehensive requirements. It includes recommendations for the design, integration and validation of safety-related electrical, electronic and programmable electronic control systems (SRECS) for machines. For the first time, one standard covers the entire safety chain, from the sensor to the actuator. The Safety Integrity Level, or SIL for short, is defined as the application parameter for this standard.

Requirements placed on the capacity of non-electrical – e.g. hydraulic, pneumatic, or electromechanical – safety-related control elements for machines are not specified by the standard.

Safety of machines and systems

The ISO 13849-1 standard

ISO 13849-1 "Safety of machinery - Safety-related parts of controls – Part 1: General principles" replaced EN 954-1 at the end of 2011. It considers the complete range of safety functions with all the devices which are involved in their performance. ISO 13849-1 also makes a quantitative analysis of the safety functions. The standard describes how to determine the Performance Level (PL) for safety-relevant parts of control systems on the basis of architectures specified for the intended service life.

When combining several safety-related parts to form a complete system, the standard explains how to determine the resulting PL. It can be applied to safety-related parts of control systems (SRP/CS) and all types of machines, regardless of the technology and energy used, e.g. electrical, hydraulic, pneumatic or mechanical.

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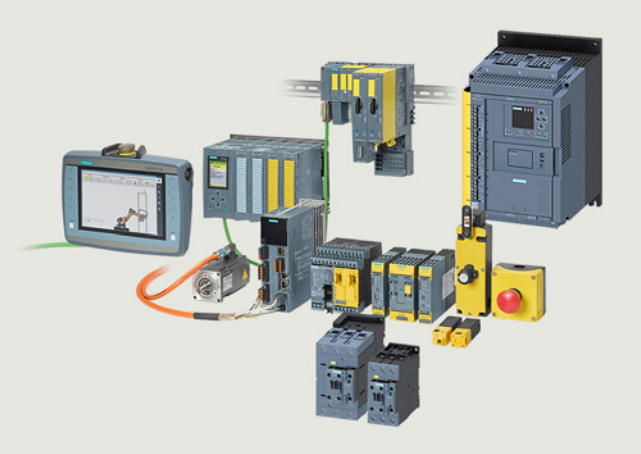
### *Safety Integrated – Integrated safety technology from a single source*



Safety Integrated

The following applies equally for machine manufacturers and the companies which operate their machines: Maximum possible safety for personnel and machines. The solution: our Safety Integrated concept based on Totally Integrated Automation. Whether for simple safety functions or highly complex tasks – our portfolio offers you maximum safety.

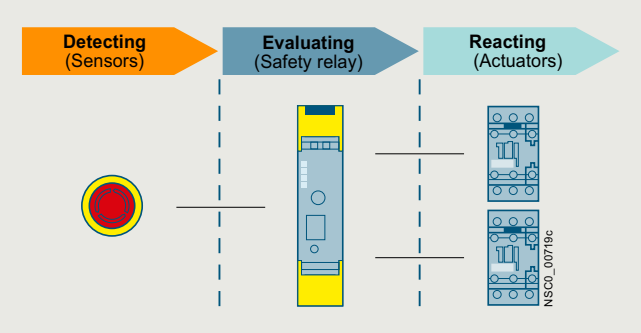
Safety Integrated is a unique, complete and consistent range of safety products covering all safety-related tasks – from detecting, evaluating and reacting, from switches and control systems to operating mechanisms (see graphic on page 11/4). Our products meet the safety requirements in force in industry, including IEC, ISO, NFPA and UL, and are certified in accordance with the latest safety standards.

All Safety Integrated products or systems can be seamlessly integrated in the standard automation environment. They are therefore particularly flexible and economical, reduce engineering time, increase plant availability and enable practice-related machine operation.

### *Designing a safety function*

A safety chain normally comprises the following functions: detect, evaluate and react. In detail this means:

- Detect = the detection of a safety requirement with corresponding sensors, such as EMERGENCY STOP or position switches
- Evaluate = the detection of a safety requirement and the reliable initiation of a reaction, e.g. shutting down the enabling circuits
- React = shutting down the hazard using suitable motor switching devices such as contactors, fail-safe motor starters, or fail-safe soft starters



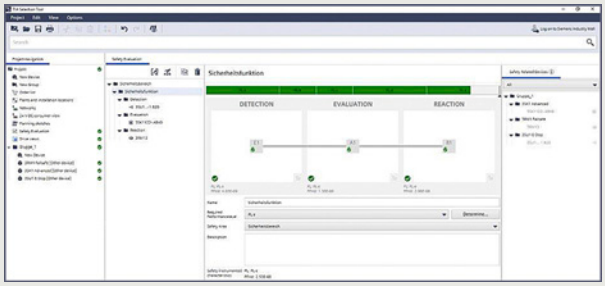

Possible configuration of a safety function

As a partner for all safety requirements, we not only support you with the respective safety-related products and systems, but also consistently provide you with the most current know-how on international standards and regulations. Machine manufacturers and plant managers are offered a comprehensive training portfolio as well as services for the entire lifecycle of safety-related systems and machines.

- A uniform, certified product range
- Courses on CE marking, risk assessment and standards, see www.siemens.com/sitrain
- For a collection of frequently required documents, see Safety Integrated - Safety in Factory Automation
- For application examples, see www.siemens.com/safety-selector
- Worldwide service and support, see https://support.industry.siemens.com

For more information, see www.siemens.com/safety-integrated.

### *Safety Evaluation in the TIA Selection Tool*



Safety Evaluation

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

Your advantages at a glance:

- Automatic calculation in accordance with current standards
- Fast results: Standards-compliant report
- Less time needed to evaluate the safety functions
- Fast access to the latest product data
- User-friendly archiving: Projects can be saved and called up again as required
- Selection menus for determining diagnostic coverage (DC) and common cause failures (CCF).
- Different operating cycles can be input when used in a 2-channel configuration
- Failure rate calculation

For more information, see www.siemens.com/safety-evaluation.

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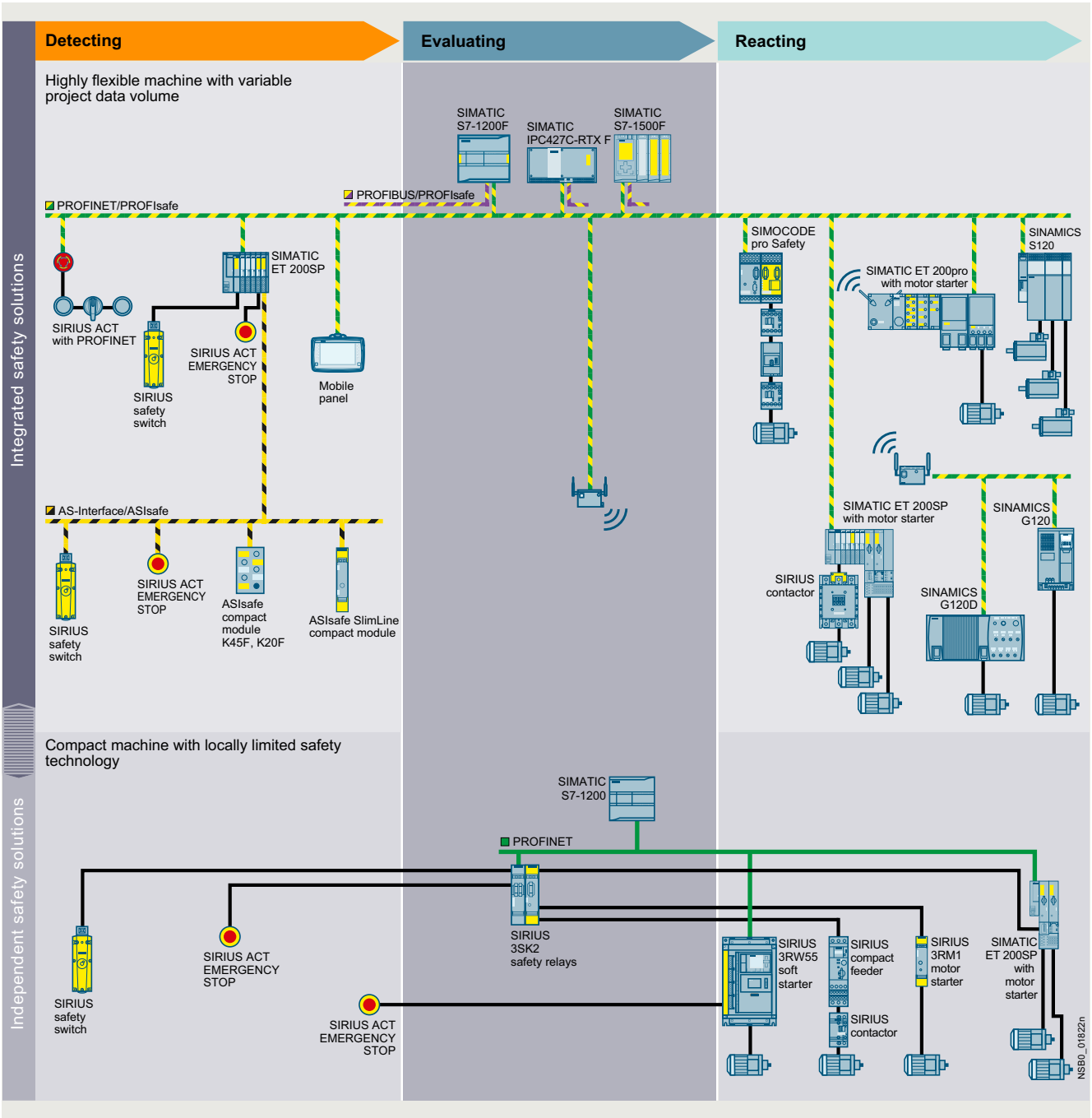
## Introduction




Safety Integrated

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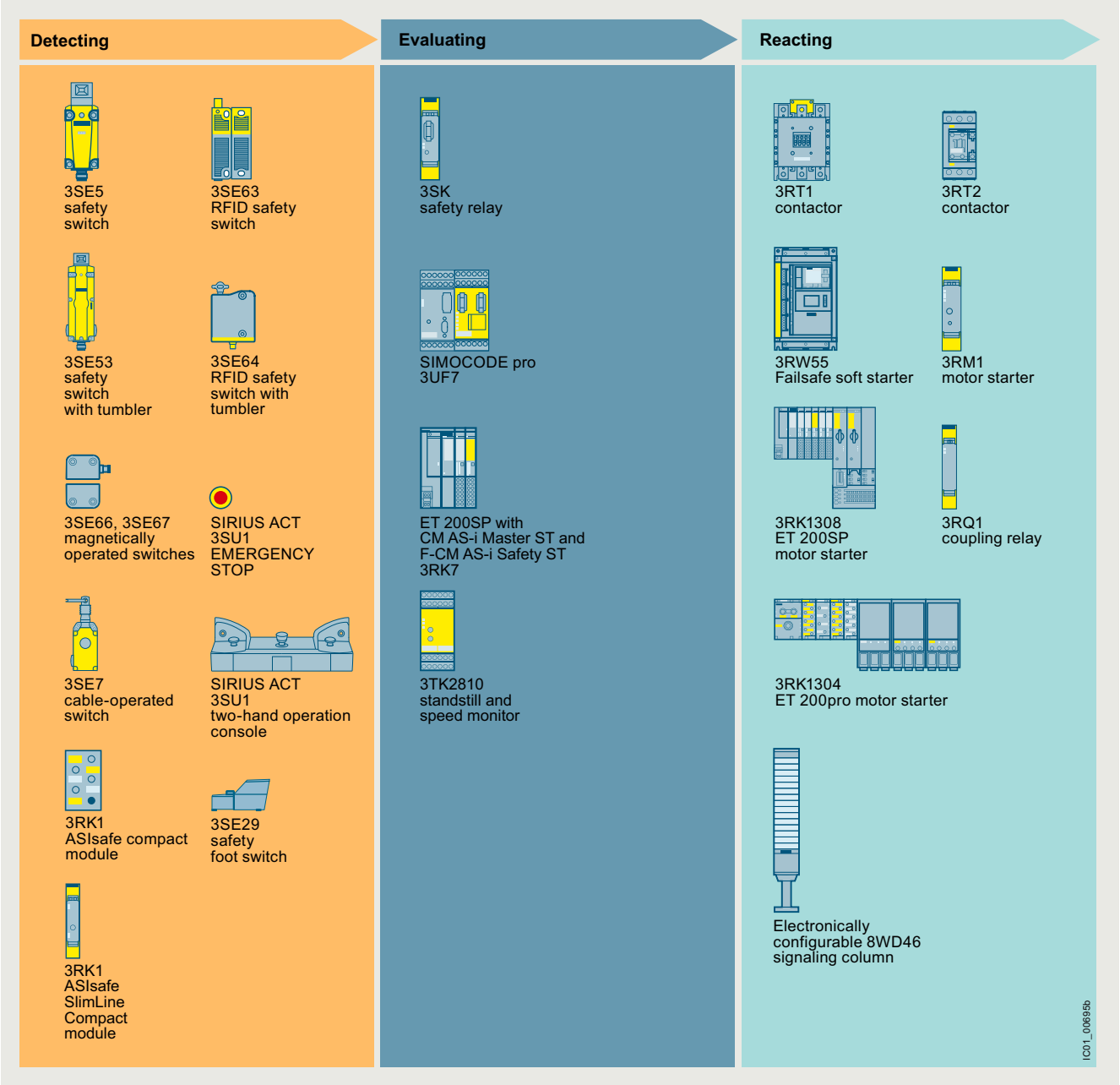
### *SIRIUS Safety Integrated*

Our SIRIUS Safety Integrated controls are a central element of the Siemens Safety Integrated concept. Whether for fail-safe detecting, commanding and signaling, monitoring and evaluating or starting and reliable shutting down – our SIRIUS Safety Integrated controls are experts at performing safety tasks in your plant.

SIRIUS Safety Integrated uses fail-safe communication via standard fieldbus systems, such as ASIsafe via AS-Interface and PROFIsafe via PROFIBUS and PROFINET, to solve even networked safety tasks of greater complexity. This opens the door for flexible safety solutions for compact machines or large-scale plants.

Implementation of many typical safety applications, see Application Manual for SIRIUS Safety Integrated.




SIRIUS Safety Integrated

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## Introduction

***Monitoring with safe evaluation devices from the 3SK series***

The safe evaluation devices of the 3SK device series are perfectly suited for evaluating safety switches of the 3SE product family. These are not only suitable for simple position switches, but can also be used easily and without problems with non-contact position switches and switches with tumblers. The highest safety levels, SIL 3 according to IEC 62061 and PL e according to ISO 13849-1, can be achieved.

Monitoring with fail-safe evaluation units

Notes:

For more information, see FAQ article.
For information on safety switches, see page 12/1 onwards.

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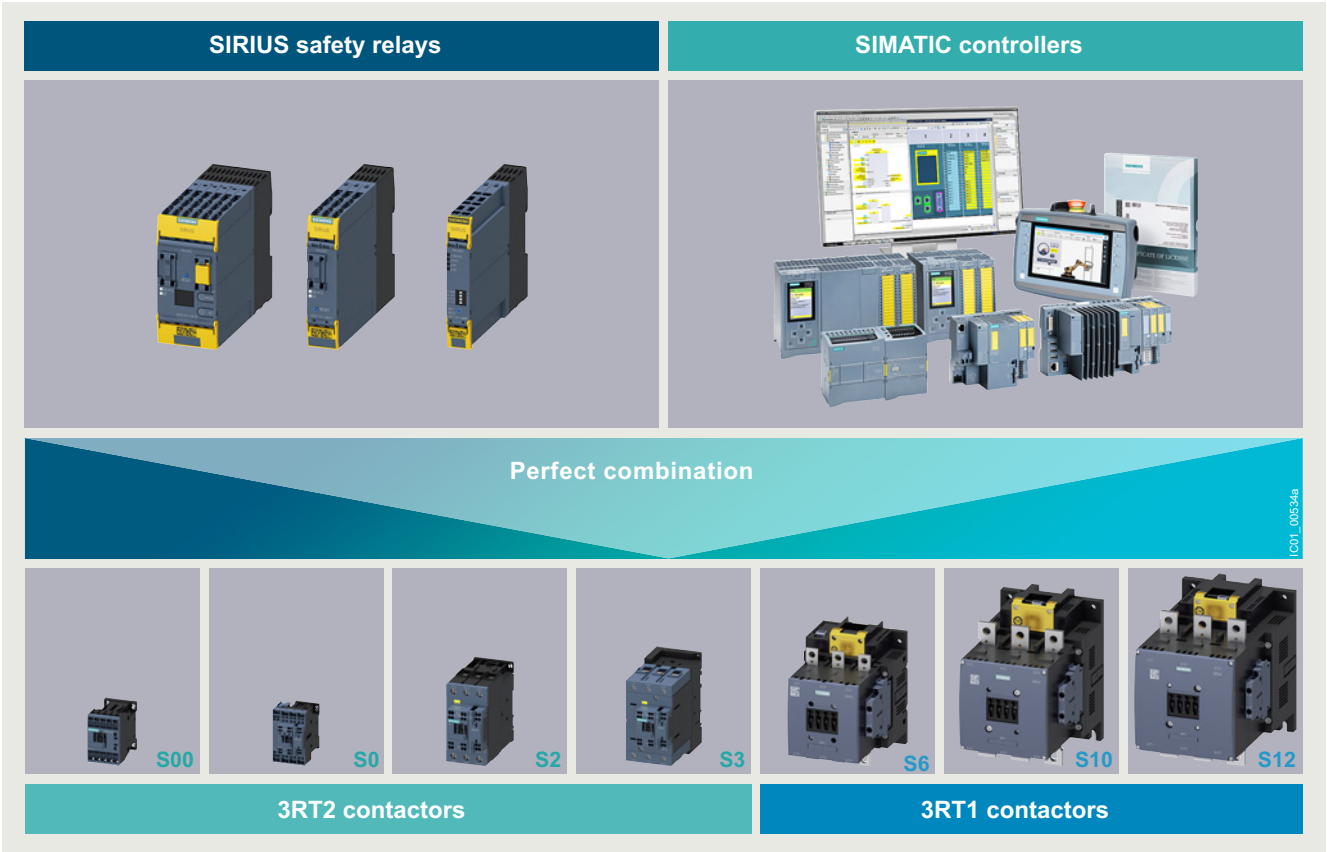
***Using SIRIUS 3RT contactors with fail-safe controllers and safety relays***

Safety relays and fail-safe controllers work perfectly with SIRIUS contactors optimized for safety application regardless of their size:

- In the low performance range with 3RT201 or 3RT202 contactors with DC operating mechanism
- In the medium performance range with 3RT203 or 3RT204 contactors with solid-state operating mechanism and fail-safe control input
- In the high performance range with 3RT105, 3RT106 or 3RT107 contactors with solid-state operating mechanism and fail-safe control input

They offer the following advantages:

- Reduced current load on the controller outputs
- Minimization of wear for mechanical relays on controllers or safety relays
- Coupling links between controllers and contactors are no longer required




Combination of SIRIUS 3RT contactors with fail-safe controllers and safety relays

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| | | Type | Page |
|---|---|---|---|
| **SIRIUS Safety Integrated** | | | |
| 3SK111 | **3SK safety relays**<br>• Key modules of a consistent and cost-effective safety chain<br>• Can be used for all safety applications thanks to compliance with the highest safety requirements (SIL 3 according to IEC 62061 and PL e according to ISO 13849-1)<br>• Suitable for use all over the world through compliance with all globally established certifications | | |
| | SIRIUS 3SK1 Standard basic units<br>• Simple, compact devices for all important requirements for monitoring safety sensors and actuators | **3SK111** | 11/22 |
| 3SK112 | SIRIUS 3SK1 Advanced basic units<br>• Multifunctional series of safety relays with safe relay outputs, semiconductor outputs or time-delayed outputs for:<br>- EMERGENCY STOP monitoring<br>- Protective door monitoring<br>- Monitoring of non-floating sensors such as light arrays, laser scanners, etc.<br>- Monitoring of two-hand operation consoles<br>- Monitoring of equivalent (NC/NC) and antivalent (NO/NC) sensors<br>• Setting by means of DIP switch | **3SK112** | 11/23 |
| 3SK2 | SIRIUS 3SK2 basic units<br>• Series of safety relays that can be parameterized by software, with semiconductor outputs and independent output functions for:<br>- EMERGENCY STOP monitoring<br>- Protective door monitoring<br>- Protective door monitoring with tumbler<br>- Monitoring of non-floating sensors such as light arrays, laser scanners, etc.<br>- Monitoring of two-hand operation consoles<br>- Monitoring of equivalent (NC/NC) and antivalent (NO/NC) sensors<br>- Muting<br>- Communication via PROFINET (optional) | **3SK2** | 11/24 |
| 3SK121 | Expansion units<br>• 3RO and 4RO output expansions for SIRIUS 3SK1 Standard basic units, SIRIUS 3SK1 Advanced basic units and SIRIUS 3SK2 basic units<br>• 3RQ1 output expansions up to SIL 2/PL c for SIRIUS 3SK1 Standard basic units, SIRIUS 3SK1 Advanced basic units and SIRIUS 3SK2 basic units<br>• Input expansion for SIRIUS 3SK1 Advanced basic units<br>• Power supply for SIRIUS 3SK1 Advanced basic units<br>• Integration of 3RM1 motor starters possible and, therefore, simple integration of a main circuit component in a system configuration of the safety relays. There is no need for complex wiring between the safety evaluation unit and the actuator.<br>• Expansion of the Standard device series by means of wiring<br>• Expansion of the SIRIUS 3SK1 Advanced and SIRIUS 3SK2 device series by means of wiring or without wiring outlay by means of 3ZY12 device connectors | **3SK121, 3SK122, 3SK123** | 11/26, 11/28 |
| 3TK2810-1BA41 | **3TK2810 safety relays**<br>• Further modules of a consistent and cost-effective safety chain<br>• Can be used for all safety applications thanks to compliance with the highest safety requirements (SIL 3 according to IEC 62061/IEC 61508 and PL e according to ISO 13849-1)<br>• Suitable for use all over the world through compliance with all globally established certifications<br>Safe standstill monitoring with 3TK2810-0<br>• Monitoring without external sensors<br>• Universal use in applications possible<br>Safe speed monitoring with 3TK2810-1<br>• Monitoring of speed with encoders and proximity switches possible<br>• Easy diagnostics options via display<br>• Integrated monitoring of a spring-loaded locking protective door | **3TK2810** | 11/33 |

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| | Type | Page |
|---|---|---|
| **SIRIUS Safety Integrated (continued)** | | |
| K45F SC17.5F | **3RK1** | From 2/27 |
| **AS-Interface safety modules**<br>• Complete portfolio of ASIsafe modules<br>• For connection of safety switches with contacts (e.g. position switches)<br>• Degree of protection IP65/IP67 or IP20<br>• Especially compact dimensions, with widths from 17.5 mm<br>• Up to four safe inputs per module<br>• Standard outputs are available on the module in addition<br>• Up to SIL 3/PL e<br>Advantage: Easy integration of safe signals both in the control cabinet or in the field | | |
| CM AS-i Master ST and F-CM AS-i Safety ST | **6ES7, 3RK7** | 2/32, 2/36 |
| **CM AS-i Master ST and F-CM AS-i Safety ST for ET 200SP**<br>The CM AS-i Master ST and F-CM AS-i Safety ST modules are plugged into an ET 200SP configuration and connect an AS-i network, including safety-related inputs and outputs, with the controller.<br>• Single, double and multiple masters possible<br>• Per CM AS-i Master ST up to 496 DI/496 DQ/124 AI/124 AQ possible<br>• Per F-CM AS-i Safety ST up to 31 safe input signals (2-channel)/16 safe output channels possible<br>• Configuration in the TIA Portal/STEP 7<br>• Plant-wide safety programming of the F-CPU via SIMATIC Distributed Safety/Safety Advanced<br>• Integrated diagnostics<br>• No other programming tools required<br>Advantage: Modular connection of fail-safe AS-i networks with system-wide programming in SIMATIC and SINUMERIK controllers. | | |
| **SIRIUS 3RT contactors, 3-pole** | | |
| 3RT203.-1S.30 3RT204.-1S.30 | **3RT20** | 3/62 |
| 18.5 to 55 kW<br>• Solid-state operating mechanism with fail-safe control input for safety-related applications up to SIL 2/PL c with one contactor or SIL 3/PL e with two contactors<br>• 3RT20 only for motor loads<br>• Version with auxiliary switch can be extended either on the front or on the side | | |
| 3RT1...-.S.36 | **3RT10, 3RT14** | 3/65, 4/18 |
| 55 to 250 kW or 690 A<br>• Solid-state operating mechanism with fail-safe control input for safety-related applications up to SIL 2/PL c with one contactor or SIL 3/PL e with two contactors<br>• 3RT10 for motor loads or 3RT14 for weak or non-inductive loads<br>• Version with removable lateral auxiliary switches or permanently mounted auxiliary switches | | |
| 3RQ1 | **3RQ1** | 5/21 |
| **SIRIUS 3RQ1 force-guided coupling relays, fail-safe up to SIL 3/PL e**<br>• They are used for safe coupling up to SIL 3/PL e of control signals from and to a control system or as an output expansion for the SIRIUS 3SK safety relays.<br>• Wide voltage ranges from 24 to 240 V AC/DC<br>• All versions with real load contacts, also in the NC circuit<br>• International standards and certifications including CE, UL/CSA, EAC, railway approvals, and more | | |
| 3RW55 | **3RW55** | 6/39 |
| **3RW55 Failsafe soft starters**<br>• 3RW55 soft starters for safety-oriented tripping<br>• SIL 1/PL c without additional safety evaluation unit or contactor with direct wiring of an EMERGENCY STOP to F-DI<br>• SIL 3/PL e with an additional contactor and safety evaluation unit or F-PLC<br>• For motors up to 315 kW (at 400 V) in the inline circuit or 560 kW (at 400 V) in the inside-delta circuit | | |

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| | | Type | Page |
|---|---|---|---|
| **SIRIUS Safety Integrated (continued)** | | | |
| 3RM1 | **3RM1 Failsafe motor starters**<br>• Motor starters for safety-oriented tripping as 3RM11 direct-on-line starters or 3RM13 reversing starters<br>• Compact devices with 22.5 mm width comprising combinations of relay contacts and power semiconductors (hybrid technology) and an electronic overload relay<br>• For switching three-phase motors up to 3 kW (at 400 V) and resistive loads up to max. 10 A at AC voltages up to 500 V under normal operating conditions<br>• Safety-oriented tripping according to SIL 3 or PL e by shutting down the control supply voltage or control inputs possible without additional devices in the main circuit<br>• Combination with 3SK safety relay through conventional wiring or 3ZY12 device connectors<br>• Simple wiring and collective shutdown with device connectors in assemblies; there is no further need for complex looping of the connecting cables | **3RM1** | 8/90 |
| 3RK1308-0CB00-0CP0 | **ET 200SP fail-safe motor starters**<br>• Fully integrated into the ET 200SP I/O system (including TIA Selection Tool and TIA Portal)<br>• Fully pre-wired motor starters for switching and protecting any AC loads up to 5.5 kW from 48 V AC to 500 V AC<br>• Less space required in the control cabinet (20 to 80%) as a result of greater functional density (direct- on-line and reversing starters in same width)<br>• Longer service life and reduced heat losses thanks to hybrid technology<br>• Self-assembling 32 A power bus, i.e. the load voltage is only fed in once for a group of motor starters<br>• High degree of flexibility when it comes to safety applications via SIMATIC F-CPU or 3SK safety relays up to SIL 3 and PL e<br>• Diagnostics capability for active monitoring of the switching and protection functions<br>• Digital inputs can optionally be used via a 3DI/LC module | **3RK1** | 8/100 |
| ET 200pro Safety | **ET 200pro safety motor starters Solution**<br>Safety motor starters Solution PROFIsafe are often found in safety applications of the more complex type that are interlinked. In this case, a safe control system is used with the PROFINET or PROFIBUS bus systems with the PROFIsafe profile.<br>It comprises:<br>• PROFIsafe modules<br>• Disconnecting modules<br>• Standard motor starters<br>• High Feature motor starters | **3RK1** | 9/11 |
| SIMOCODE pro V<br> SIMOCODE pro S | **SIMOCODE pro motor management and control devices**<br>• Flexible, modular motor management system for motors with constant speeds in the low-voltage range<br>• Provides an intelligent interface between the higher-level automation system and the motor feeder<br>• Multi-functional, electronic full motor protection which is independent of the automation system<br>• Integrated control functions for the motor control<br>• Detailed operating, service and diagnostics data<br>• Open communication via PROFIBUS DP, PROFINET/OPC UA, Modbus RTU or EtherNet/IP<br>• Safety relay function for the fail-safe disconnection of motors up to SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1<br>Fail-safe digital modules<br>• DM-F Local for direct assignment between a fail-safe hardware shutdown signal and a motor feeder<br>• DM-F PROFIsafe for when a fail-safe controller (F-CPU) creates the fail-safe signal for the disconnection | **3UF7** | 10/5 |

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| | | Type | Page |
|---|---|---|---|
| **SIRIUS Safety Integrated (continued)** | | | |
| 3SE51 | **Mechanical position switches**<br>• Easy assembly thanks to modular design<br>• Solid, rugged design<br>• Special versions are easily generated and quickly available, also in combination with standard modules<br>• With a 3SE51/3SE52 position switch, it is possible to achieve SIL 1 according to IEC 62061/IEC 61508 or PL c according to ISO 13849-1.<br>• SIL 2/PL d and SIL 3/PL e can be achieved by using a second 3SE51/3SE53 position switch. | **3SE51, 3SE52** | 12/5 |
| 3SE53 | **Mechanical safety switches**<br>• With separate actuator, hinge switch, or separate actuator and tumbler<br>• With a position switch, it is possible to achieve SIL 2 according to IEC 62061/IEC 61508 or PL d according to ISO 13849-1.<br>• SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1 can be achieved by using a second 3SE51 or 3SE52 position switch.<br>• Version in various sizes made of metal or plastic<br>• In the case of safety switches with tumbler, versions in the high degree of protection IP69<br>• Version with integrated ASIsafe electronics available for all enclosure designs | **3SE51, 3SE52, 3SE53**<br>**3SF1** | 12/50<br>12/93 |
| 3SE66, 3SE67 | **Non-contact magnetically operated safety switches**<br>Magnetically operated switch<br>• Small, compact, safe<br>• Simple installation even in restricted spaces thanks to connector versions<br>• Two safety contacts and one signaling contact enable simple diagnostics at the maximum safety level | **3SE66, 3SE67** | 12/113 |
| 3SE63 | RFID safety switches<br>• Long service life due to non-contact switching<br>• Only one switch required for the maximum safety level SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1<br>• Tamper protection better than with mechanical safety switches thanks to switches and actuators with individual coding<br>• LED status display including threshold indication for door displacement<br>• Degree of protection up to IP69 and resistance to cleaning products<br>• Larger switching displacement than with mechanical switches; offers better mounting tolerance and sagging tolerance of the protective door | **3SE63** | 12/119 |
| 3SE64 | Also for RFID safety switches with tumbler<br>• 1 150 N locking force<br>• Suitable for protection of persons and/or processes (quiescent current or open-circuit principle)<br>• 25 N/50 N latching force adjustment by rotating the star handle 180°<br>• Guard locking possible from three sides (three directions of actuation) by means of a star handle<br>• Assisted or escape release of guard locking<br>• Actuator can be used for door stop (using damper) | **3SE64** | 12/122 |
| 3SU14<br> 3SU1 with PROFINET<br> 3SU1 | **Command devices**<br>SIRIUS ACT pushbuttons and indicator lights<br>• Using a special F adapter, EMERGENCY STOP control devices according to ISO 13850 can be directly connected through the standard AS-Interface or PROFIsafe with safety-related communication. This F adapter/fail-safe interface module is snapped from the rear onto the EMERGENCY STOP control device, enabling the achievement of SIL 3 according to IEC 62061 or PL e according to ISO 13849-1.<br>• Thanks to SIRIUS ACT with PROFINET, commanding and signaling devices can be connected directly via PROFINET to the controller and HMI devices – including with safety functions. Engineering and commissioning are simplified by the TIA Portal.<br>• EMERGENCY STOP devices for disconnecting plants in an emergency situation<br>• With positive latching function according to ISO 13850 and SIL 3 according to IEC 62061 or PL e according to ISO 13849-1<br>• Various mushroom diameters (also illuminated), with lock, in plastic/metal, as individual or complete units, and in combination with 3SU1 enclosure or two-hand operation console. The 3SU1 enclosures are also optionally available with ASIsafe interface | **3SU1** | 13/6 |

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| | | Type | Page |
|---|---|---|---|
| **SIRIUS Safety Integrated (continued)** | | | |
| 8WD46 | **Electronically configurable 8WD46 signaling columns**<br>• Compact and electronically modular design for flexible and versatile use<br>• Flexible segment configuration using individually definable colors (multicolor LED), intensity and function (flashing, single-flash, continuous or rotating light element)<br>• Adjustable tones and volume<br>• Conventional signaling columns with configuration of the signaling columns via USB interface, with fast linking to the application through 8-pole M12 plug<br>• Signaling columns for IO-Link configured via IO-Link interface (IODD) and fast linking to the application through 4-pole M12 plug. | **8WD46** | 13/163 |
| 3SE7 | **Cable-operated switches**<br>• Control functions and EMERGENCY STOP always within reach<br>• More safety over long distances of up to 2 x 100 m length<br>• Easy release<br>• Fail-safe applications with SIRIUS Safety Integrated<br>• Status display directly on the switch<br>• Signal display for long distances in innovative LED technology with visibility over 50 m<br>• Cable-operated switches with latching according to ISO 13850 (EN 418) and full EMERGENCY STOP function with positive-opening contacts<br>• Quick and safe mounting using uniform mounting accessories<br>• Versions with 1 NO/2 NC with yellow lid | **3SE7** | 13/156 |
| 3SE2924-3AA20 | **Safety foot switches**<br>• Are used wherever manual operation is not possible<br>• With hood, IP65 metal enclosure<br>• With interlock function according to ISO 13850, manual release by pushbutton switch<br>• With 2 NO + 2 NC, NO contacts close by momentary contact, positive-opening NC contacts with independent latching (safety function) | **3SE2924-3AA20** | 13/161 |

### *Connection methods*

The 3SK safety relays are available with screw or spring-loaded terminals (push-in).

The 3TK2810 safety relays are available with screw or spring-loaded terminals.

| | |
|---|---|
| | Screw terminals |
| | Spring-loaded terminals, spring-loaded terminals (push-in) |
| | The terminals are indicated in the corresponding tables by the symbols shown on orange backgrounds. |

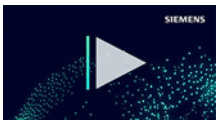
3SK safety relays: Spring-loaded terminals (push-in) with TOP wiring

Push-in terminals are a form of spring-loaded terminals allowing fast wiring without tools for rigid conductors or conductors equipped with end sleeves.

As with other spring-type terminals, a screwdriver (with 3.0 x 0.5 mm blade) is required to disconnect the conductor. The same tool can also be used to wire finely stranded or stranded conductors with no end finishing.

The advantages of the push-in terminals are found, as with all spring-loaded terminals, in speed of assembly and disassembly and vibration-proof connection. There is no need for the checking and tightening required with screw terminals.

With the TOP wiring method, the wire inlet and terminals can be reached from the front. This helps to speed up the wiring process and eliminate wiring errors.




Video: SIRIUS spring-loaded terminals - Strong, flexible, safe, fast

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## Overview

SIRIUS 3SK safety relays

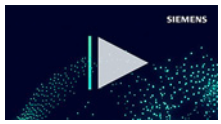
| More information |
|---|
| Homepage, see www.siemens.com/sirius-safety-relays |
| Industry Mall, see www.siemens.com/product?3SK |
| Conversion tool, see www.siemens.com/conversion-tool |
| SIRIUS Sim 3SK2 simulation tool, see https://support.industry.siemens.com/cs/ww/en/view/109763750 |

SIRIUS 3SK safety relays are the key elements of a consistent, cost-effective safety chain. Whether you need EMERGENCY STOP functionality, protective door monitoring, light arrays, laser scanners or the protection of presses or punches – slimline SIRIUS safety relays enable all safety applications to be implemented in the best possible way in terms of engineering and price.

The following safety-related functions are available:

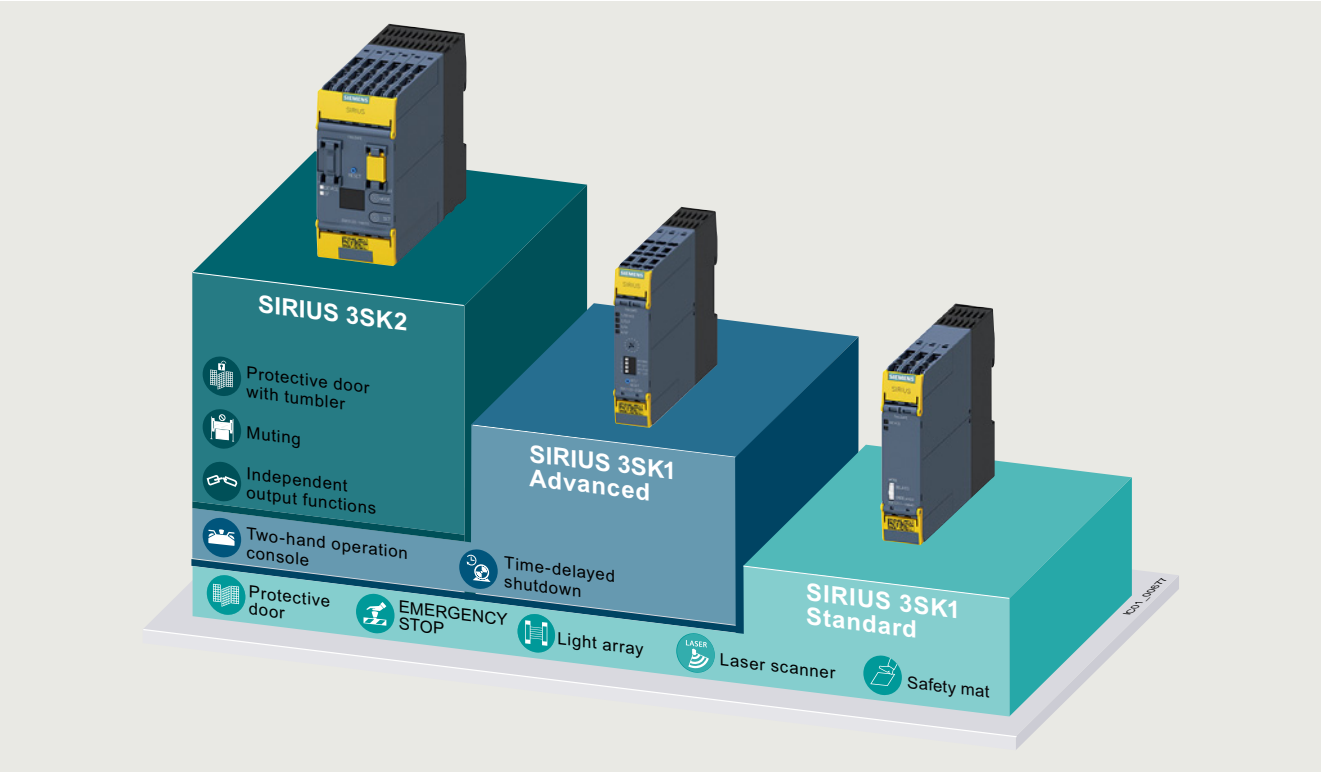
- Monitoring the safety functions of sensors
- Monitoring the sensor leads
- Monitoring the correct device function of the safety relays
- Monitoring the actuators in the shutdown circuit
- Safety-related disconnection when dangers arise

SIRIUS 3SK safety relays are approved for applications up to SIL 3 according to IEC 62061 or PL e according to ISO 13849-1.



Video: 3SK safety relays - Select the optimum device - precisely for your application

### *Device series*




SIRIUS 3SK device series

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## General data

SIRIUS 3SK safety relays stand out due to their flexibility for both parameterization and system designs with several evaluation units. This reduces device variance, thus bringing advantages in terms of device selection and spare parts management. Optimized solutions when selecting components and reduced spare part inventory requirements are facilitated by a clearly structured component range. Device connectors are simply used for connecting most components. This considerably reduces the wiring effort and avoids possible errors.

3SK1 Standard basic units

The 3SK1 Standard basic units are characterized by the following features:

- Compact design
- Simple operation
- Relay and semiconductor outputs
- Economical solution

3SK1 Advanced basic units

The 3SK1 Advanced basic units also offer:

- Universal application possibilities thanks to multifunctionality
- Time-delayed outputs
- Expansion of inputs and outputs

3SK2 basic units

The 3SK2 basic units also offer:

- Up to six fail-safe, independent shutdown functions
- Flexible in use thanks to software parameterization
- Powerful semiconductor outputs
- Convenient diagnostics using diagnostics display and configuration software
- Communication via PROFINET/PROFIBUS by means of communications module

All three basic device series can be supplemented with output expansions. These provide further fail-safe, potential-free relay contacts for controlling actuators. In addition, the 3RM1 Failsafe motor starters can also be integrated into the 3SK system (see page 11/17).

In the 3SK1 Advanced and 3SK2 device series, the output expansions are connected by means of device connectors, in the 3SK1 Standard series by means of wiring.

For the 3SK1 Advanced device series, there is also the possibility of supplementing the basic units with input expansions. Here too, the connection is made via device connectors. This means that no individual basic units need to be interconnected if more than one sensor is required in the safety application.

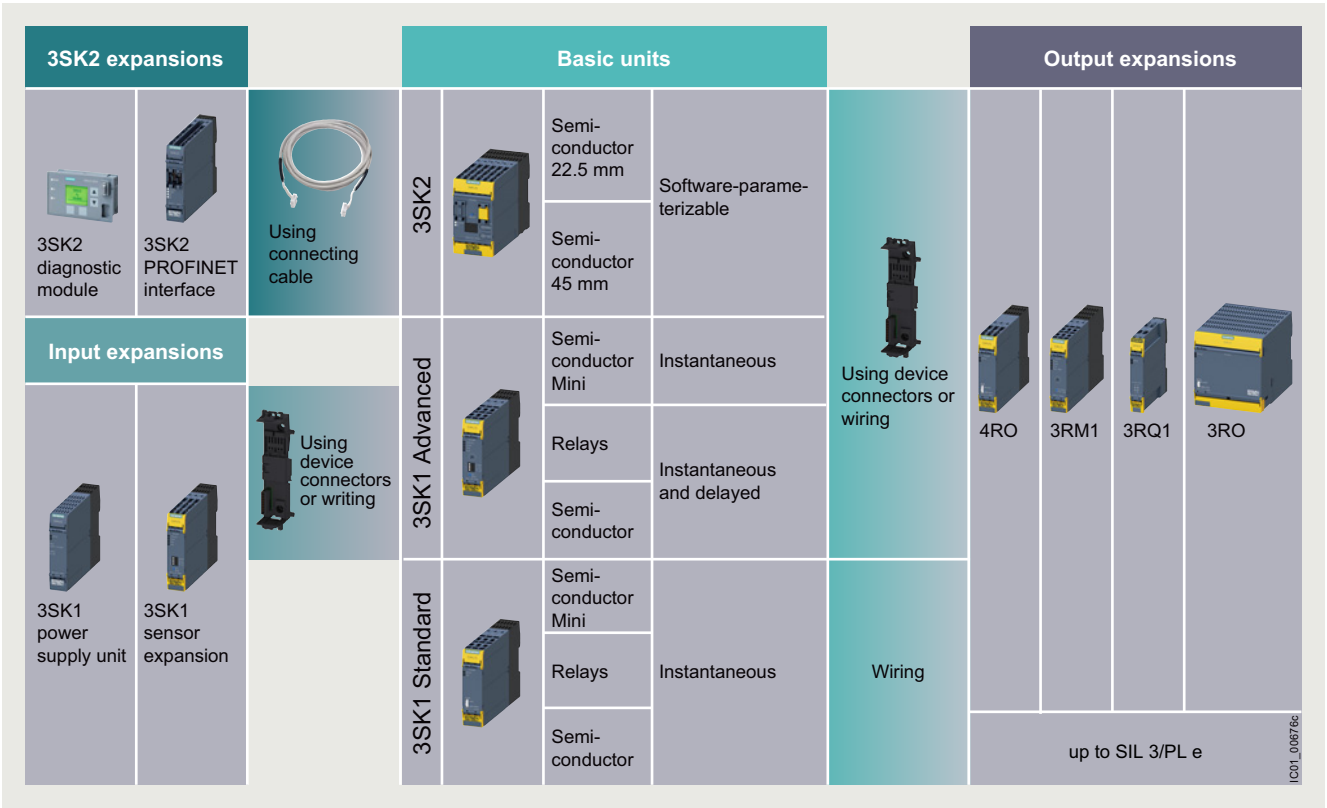
Since the 3SK1 Advanced device series comprises devices with 24 V DC operating voltage, a power supply is also available.

The 3SK2 device series can optionally be connected with a communications module via PROFINET to a control system, e.g. for diagnostics.

It is also possible to connect a diagnostics module to the 3SK2 system. This can be mounted in the control cabinet door, for example, and displays errors and diagnostics as well as configuration data quickly and clearly.

The 3SK1 Standard and Advanced and 3SK2 series are a high-quality replacement for the 3TK28 safety relays. In their narrower design, and equipped with greater functionality, they can replace every 3TK28 device. The only exception to this are the 3TK2810 devices.

The 3RQ1 force-guided coupling relays can be used as an output expansion for 3SK up to SIL 2/PL c. Connection is also possible with device connectors.




System overview

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***Overview of functions of the 3SK device series***

| Type | 3SK1 Standard basic units | | 3SK1 Advanced basic units | | 3SK2 basic units 22.5 mm | 3SK2 basic units 45 mm |
|---|---|---|---|---|---|---|
| | Safe relay outputs | Safe semiconductor outputs | Safe relay outputs | Safe semiconductor outputs | Safe semiconductor outputs | Safe semiconductor outputs |
| **Sensors** | | | | | | |
| • Mechanical | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| • Non-floating | ✓[1] | ✓ | ✓ | ✓ | ✓ | ✓ |
| • Antivalent | -- | -- | ✓ | ✓ | ✓ | ✓ |
| • Expandable | -- | ✓ by means of cascading | ✓ | ✓ | -- | -- |
| **Inputs** | 2 x 1-channel, 1 x 2-channel | 2 x 1-channel, 1 x 2-channel | 2 x 1-channel, 1 x 2-channel | 2 x 1-channel, 1 x 2-channel | Freely configurable: 10 x 1-channel, 5 x 2-channel | Freely configurable: 20 x 1-channel, 10 x 2-channel |
| **Parameters** | | | | | | |
| • Start (auto/monitored) | ✓ | ✓ | ✓ | ✓ | A variety of functions can be set for each input/output by means of software parameterization. | |
| • Sensor connection, 2 x 1-channel/ 1 x 2-channel | ✓ by means of wiring | ✓ | ✓ | ✓ | | |
| • Cross-circuit detection | ✓ by means of wiring | ✓ | ✓ | ✓ | | |
| • Start-up test ON/OFF | -- | ✓ | ✓ | ✓ | | |
| • Monitoring of two-hand operator panels according to EN 574/ISO 13851 | -- | -- | ✓ | ✓ | | |
| • Safety mat | -- | -- | ✓ | ✓ | | |
| **Safe outputs** | | | | | | |
| • Instantaneous | ✓ | ✓ | ✓ | ✓ | Configurable | Configurable |
| • Time-delayed | -- | -- | ✓ | ✓ | Configurable | Configurable |
| • Expandable with safe relay outputs | ✓ by means of wiring | ✓ by means of wiring | ✓ | ✓ | ✓ | ✓ |
| • Independent | -- | -- | -- | -- | ✓[2] | ✓[3] |
| • Device connectors | -- | -- | ✓ | ✓ | ✓ | ✓ |
| **Options** | | | | | | |
| • External memory module | -- | -- | -- | -- | -- | ✓ |
| • Display on the device | -- | -- | -- | -- | -- | ✓ |
| • External diagnostics module can be connected | -- | -- | -- | -- | ✓ | ✓ |
| **Control supply voltage** | | | | | | |
| • 24 V DC | ✓[4] | ✓ | ✓ | ✓ | ✓ | ✓ |
| • 110 ... 240 V AC/DC | ✓ | ✓[5] | ✓[6] | ✓[6] | -- | -- |

✓ Available
-- Not available

1) 24 V basic units only.
2) Up to four independent safe outputs, two of which via device connectors.
3) Up to six independent safe outputs, two of which via device connectors.
4) 24 V AC/DC.
5) Possible using 3SK1230 power supply by means of wiring.
6) Possible using 3SK1230 power supply via device connector.

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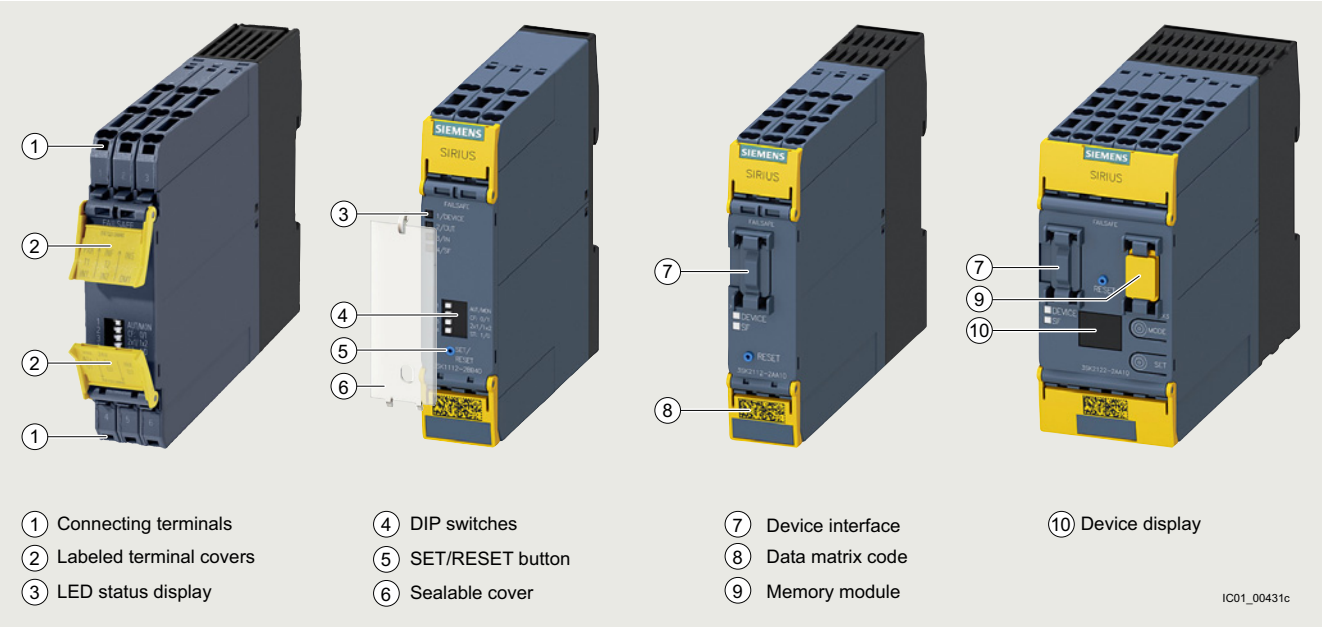
## General data

### *Enclosure concept*

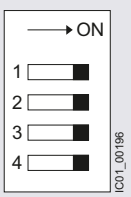



Innovative enclosure concept for SIRIUS 3SK safety relays

### *Parameter assignment*

3SK112 and 3SK1112 with DIP switch

The 3SK112 and 3SK1112 safety relays are configurable safety relays. They are used as evaluation units for typical safety chains (detect, evaluate, react). A number of functions can be set using the DIP switches on the front. 3SK112 and 3SK1112 are therefore universally applicable.

| DIP switch No. | OFF | ON | Schematic |
|---|---|---|---|
| 1 | Sensor input Autostart | Sensor input Monitored start |  |
| 2 | Without cross-circuit detection | With cross-circuit detection | |
| 3 | 2 x single-channel sensor connection | 1 x 2-channel sensor connection | |
| 4 | With start-up test | Without start-up test | |



3SK2 with software

The SIRIUS Safety ES (TIA Portal) software permits quick and easy parameterization, commissioning and diagnostics of SIRIUS 3SK2 safety relays.
Device configuration and device functionality can easily be created graphically directly on the PC and transferred to the switching device through a USB cable or an optional PROFIBUS/PROFINET interface.

Note:

SIRIUS Safety ES (TIA Portal), see page 14/22.

### *Communication*

| | 3SK2112, 22.5 mm | 3SK2122, 45 mm |
|---|---|---|
| PROFINET | ✓ | ✓ |
| PROFIBUS | ✓ | ✓ |

✓ Available

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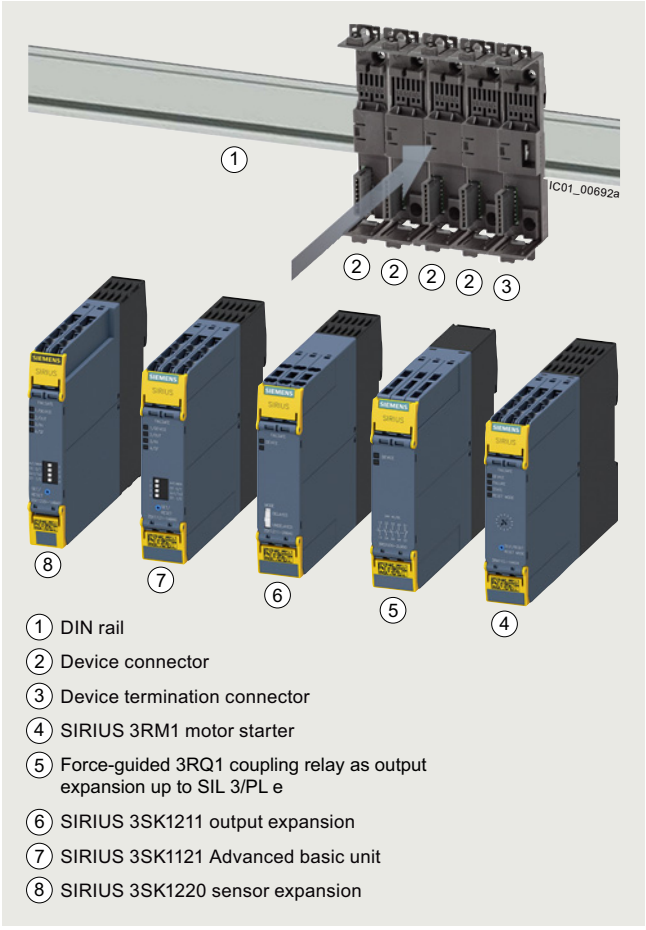
***Optimum connection with device connectors***




3RQ1 with 3SK1

In the case of 3SK1 Advanced basic units or 3SK2 basic units, the 3ZY12 device connectors allow safety functions involving several sensors and actuators to be constructed very quickly.

***3RQ1 coupling relays as output expansion for 3SK***

The SIRIUS 3RQ1 force-guided coupling relays in a modern titanium gray industrial enclosure are available in widths of 17.5 mm and 22.5 mm and can be used as an output expansion for SIRIUS 3SK safety relays.

They have safety certification up to SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1.

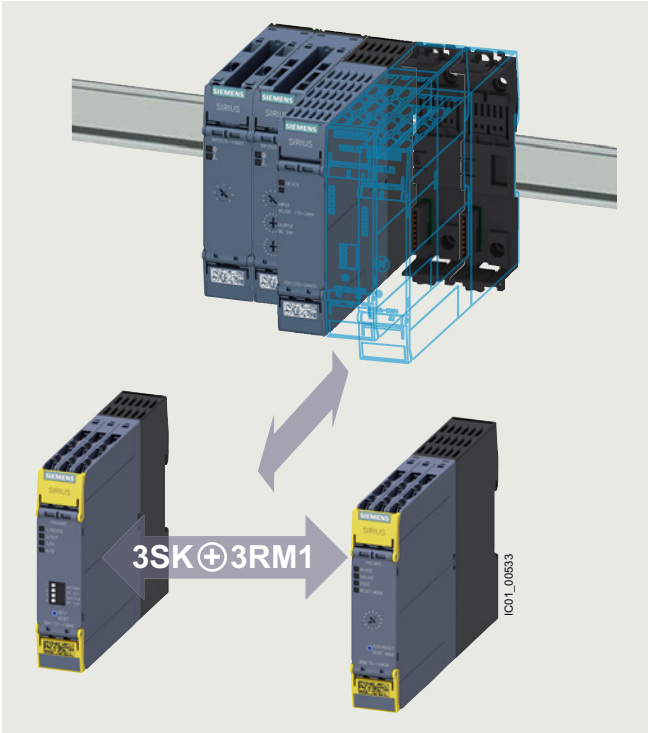
Versions with a wide-range voltage input of 24 ... 240 V AC/DC and an installation depth of 90 mm, and versions with 24 V DC and an installation depth of 120 mm for use with 3SK device connectors are available.

The series consists of devices with up to five outputs and can be supplied with screw or spring-loaded (push-in) terminals.

Note:

SIRIUS 3RQ1 coupling relays, see page 5/21.

***Seamlessly integrated safety right through to the main circuit***




Problem-free integration of functional safety into the main circuit through the simple combination of 3RM1 and 3SK1 devices

Functional safety in the main circuit needs to be both simple and flexible

The unique compatibility of hybrid 3RM1 fail-safe motor starters and 3SK safety relays means that integrated functional safety right through to the main circuit is no longer a problem.

Their compact design allows the motor starters to be installed to the right of the safety relay in a simple manner, just like an output expansion. The wiring of the safety-related signals to the relay can be performed simply, quickly and in an error-free manner using the device connector.

The ergonomically designed enclosure with removable terminals and terminal labeling in the hinged cover allows for the cables to be conveniently diagonally mounted from the front. Either screw or spring-loaded terminals with push-in technology are available.

Highlights

- Fail-safe disconnection of motors up to 3 kW
- Problem-free combination of fail-safe motor starters and safety relays
- End-to-end system, simple setup using device connectors
- Ergonomic enclosure

Note:

SIRIUS 3RM1 motor starters, see page 8/83.

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## General data

### *Ordering notes for multi-unit packaging*

SIRIUS 3SK safety relays can also be ordered in practical and environmentally friendly multi-unit packaging on request.

Multi-unit packaging with order code X90

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code **"X90"** must be specified.

Ordering example:
3SK1111-2AB30-Z X90;
Order quantity 12 items → Packed number of items 12

For more information, see page 16/7.

### *Article number schemes*

| Product versions | | Article number |
|---|---|---|
| **3SK1 safety relays** | | **3SK1 □ □ □ – □ □ □ □ □** |
| Device version | Basic unit | **1** |
| | Expansion unit | **2** |
| Device variants | 3SK11: Standard; 3SK12: Output expansion | **1** |
| | 3SK11: Advanced; 3SK12: Input expansion | **2** |
| Type of outputs | Relay outputs | **1** |
| | Semiconductor outputs | **2** |
| | Power outputs | **3** |
| Connection type | Screw terminals | **1** |
| | Spring-loaded terminals (push-in) | **2** |
| Control circuit/actuation | 3SK11: 3 enabling circuits | **A** |
| | 3SK11: 2 enabling circuits | **B** |
| | 3SK11: 4 enabling circuits | **C** |
| Type of control supply voltage | 3SK1213: 24 V AC, 50/60 Hz | **B 0** |
| | 3SK1: 24 V AC/DC, 50/60 Hz | **B 3** |
| | 3SK1: 24 V DC | **B 4** |
| | 3SK1213: 115 V AC, 50/60 Hz | **J 2** |
| | 3SK1213: 230 V AC, 50/60 Hz | **L 2** |
| | 3SK1: 110 ... 240 V AC/DC; 50/60 Hz | **W 2** |
| Time delay | None | **0** |
| | 0.05 ... 3 s | **1** |
| | 0.5 ... 30 s | **2** |
| | 5 ... 300 s | **4** |
| Example | | **3SK1 1 1 1 – 1 A B 3 0** |

| Product versions | | Article number |
|---|---|---|
| **3SK2 safety relays** | | **3SK2 1 □ 2 – □ A A 1 0** |
| Device variants | 10 F-DI, 2 F-DQ, width 22.5 mm | **1** |
| | 20 F-DI, 4 F-DQ, width 45 mm | **2** |
| Connection type | Screw terminals | **1** |
| | Spring-loaded terminals (push-in) | **2** |
| Example | | **3SK2 1 1 2 – 1 A A 1 0** |

| Product versions | | Article number |
|---|---|---|
| **3SK2 interface modules** | | **3SK2 5 1 1 – □ F A 1 0** |
| Connection type | Screw terminals | **1** |
| | Spring-loaded terminals (push-in) | **2** |
| Example | | **3SK2 5 1 1 – 1 F A 1 0** |

| Product versions | | Article number |
|---|---|---|
| **3RK3 interface modules** | | **3RK3 5 1 1 – □ B A 1 0** |
| Connection type | Screw terminals | **1** |
| | Spring-loaded terminals | **2** |
| Example | | **3RK3 5 1 1 – 1 B A 1 0** |

Note:

The article number schemes shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Benefits

***General***

- Approved for all safety applications because of its compliance with the highest safety requirements (SIL 3/PL e)
- Universally usable thanks to adjustable parameters
- Usable worldwide thanks to globally valid certificates
- Compact SIRIUS design
- Device connectors with DIN-rail mounting for flexible connectability and expandability
- Removable terminals for greater plant availability
- Yellow terminal covers clearly identify the device as a safety component
- Sensor cable with a length of up to 2 000 m allows it to be used in extensive plants
- Can be used for installation altitudes up to 4 000 m

***Relay outputs***

- Different voltages can be switched through the floating contacts
- The relay contacts allow currents of up to 5 A at AC-15/DC-13 to be connected

***Semiconductor outputs***

- Wear-free
- Suitable for operation in frequently switching applications
- Insensitive to vibrations and dirt
- High electrical endurance

***Power outputs (3SK1213 output expansion)***

- Different voltages can be switched through the floating contacts
- With the power relay contacts currents up to 10 A AC-15/6 A DC-13 can be switched
- High mechanical and electrical endurance
- Protective separation between safe outputs and electronics

***Expansion option by adding the 3RM1 motor starter***

SIRIUS 3SK safety relays are ideal for combining with the SIRIUS 3RM1 motor starters (see page 11/17).

Combinations are made by means of SIRIUS 3ZY12 device connectors (in combination with 3SK1 Advanced/3SK2) or conventional wiring (for all 3SK1 and 3SK2 basic units).

This makes collective shutdown very easy in assemblies. The wiring, and ultimately the shutting down of the control supply voltage for the expansion components in EMERGENCY STOP situations, is performed via the device connector. There is no further need for complex looping of the connecting cables between the safety relay and the motor starters.

The 3RM1 motor starter combines the benefits of semiconductor technology and relay technology. This combination is also known as hybrid technology. The hybrid technology in the motor starter is characterized by the following features:

- The inrush current in the case of motorized loads is conducted briefly via the semiconductors. Advantages include protection of the relay contacts and a long service life due to low wear.
- The uninterrupted current is conducted via relay contacts. Advantages include lower heat losses compared with the semiconductor.
- Shutdown is implemented again via the semiconductor. The contacts are only slightly exposed to arcs, and this results in a longer service life.
- Integrated overload protection

***Expansion option with 3RQ1 coupling relay***

SIRIUS 3SK safety relays are ideal for combining with the SIRIUS 3RQ1 coupling relays (see page 11/17). Combinations are made by means of SIRIUS 3ZY12 device connectors or wiring.

***3ZY12 device connectors***

Using 3ZY12 device connectors to combine devices reduces the time required to configure and wire the components. At the same time errors are avoided during wiring, and this considerably reduces the testing required for the fully-assembled application.

***Configuration and stock-keeping***

Variable setting options by means of DIP switches or software, a wide voltage range (3SK1111) and a special power supply unit (3SK1 only) reduce the cost of keeping stocks, along with the configuration considerations of which evaluation unit should be selected.

***Communication***

The 3SK2 safety relays can be easily integrated in the overall application via PROFINET or PROFIBUS using optionally available interface modules.

This provides the following advantages:

- Exchange of signals and information with the plant controller
- Read-out and visualization of diagnostics information of the safety relay via the controller supports troubleshooting and reduces plant downtimes
- Access with the Safety ES engineering software via the fieldbus for parameterization, commissioning and diagnostics

***Simulation***

The SIRIUS Sim simulation tool for 3SK2 (see page 11/24) can be used to quickly and easily test configurations that have been created without real devices. The configurations thus created can then be loaded directly into the real devices. Time and costs for engineering are thus reduced.

## Application

***3SK1 safety relays***

SIRIUS 3SK1 safety relays are used mainly in autonomous safety applications which are not connected to a safety-related bus system. Their function here is to evaluate the sensors and the safety-oriented tripping in the event of hazards. Also they check and monitor the sensors, actuators and safety-related functions of the safety relay.

***3SK2 safety relays***

SIRIUS 3SK2 safety relays are used primarily in autonomous, more complex safety applications for which the functional scope of the 3SK1 devices is no longer sufficient, such as in the implementation of independent shutdown functions or integration into higher-level control systems for diagnostics via fieldbus. Their function here is to evaluate the sensors and the safety-oriented tripping in the event of hazards. Also they check and monitor the sensors, actuators and safety-related functions of the safety relay.

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## General data

### Technical specifications

**More information**

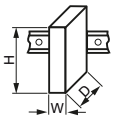
Equipment Manual 3SK1, see https://support.industry.siemens.com/cs/ww/en/view/67585885

Technical specifications
- 3SK1230, see https://support.industry.siemens.com/cs/ww/en/ps/16389/td
- 3RK3511-.BA10, see https://support.industry.siemens.com/cs/ww/en/ps/16398/td

Equipment Manual for 3SK2, see https://support.industry.siemens.com/cs/ww/en/view/109444336

FAQs, see https://support.industry.siemens.com/cs/ww/en/ps/16382/faq

***SIRIUS 3SK1 safety relays***

| Article number | | 3SK1111-.AB30, 3SK1211-.BB00, 3SK1211-.BB40 | 3SK1111-.AW20, 3SK1121, 3SK1211-.BW20 | 3SK1112 | 3SK1120, 3SK1220 | 3SK1122 | 3SK1213 |
|---|---|---|---|---|---|---|---|
| **General data:** | | | | | | | |
| **Width x height x depth**  | mm | 22.5 x 100 x 121.6 | | 22.5 x 100 x 91.6 | 17.5 x 100 x 121.6 | 22.5 x 100 x 121.6 | 90 x 100 x 121.6 |
| **Ambient temperature** | | | | | | | |
| • During operation | °C | -25 … +60 | | | | | |
| • During storage | °C | -40 … +80 | | | | | |
| **Installation altitude at height above sea level, maximum** | m | 4 000, Derating, see Product announcement | | | | | |
| **Air pressure according to SN 31205** | kPa | 90 … 106 | | | | | |
| **Shock resistance** | | 10 *g*/11 ms | | | | | 5 *g*/10 ms |
| **Vibration resistance according to IEC 60068-2-6** | | 5 ... 500 Hz: 0.75 mm | | | | | |
| **Degree of protection IP of the enclosure** | | IP20 | | | | | |
| **Touch protection against electric shock** | | Finger-safe | | | | | |
| **Insulation voltage, rated value** | V | 300 | | 50 | | | 300 |
| **Impulse withstand voltage, rated value** | V | 4000 | | 800 | | | 4000 |
| **Safety Integrity Level (SIL) according to IEC 62061** | | 3 | | | | | |
| **Performance Level (PL) according to ISO 13849-1** | | e | | | | | |
| **T1 value for proof test interval or service duration according to IEC 61508** | y | 20 | | | | | |
| **EMC emitted interference** | | IEC 60947-5-1, class B | IEC 60947-5-1, class A | | | | IEC 60947-5-1, class B |
| **Certificate of suitability** | | | | | | | |
| • UL approval | | Yes | | | | | |
| • TÜV approval | | Yes | | | | | |

| Article number | | 3SK1111, 3SK1121-.AB40, 3SK1211 | 3SK1112, 3SK1122 | 3SK1120 | 3SK1121-.CB4. | 3SK1213 |
|---|---|---|---|---|---|---|
| **Switching capacity current of the NO contacts of the relay outputs** | | | | | | |
| • At AC-15 at 230 V | A | 5 | -- | | 3 | 10 |
| • At DC-13 at 24 V | A | 5 | -- | | 3 | 6 |
| **Switching capacity current of the semiconductor outputs at DC-13 at 24 V** | A | -- | 2 | 0.5 | -- | |

| Article number | | 3SK1111-.AB30, 3SK1211 | 3SK1111-.AW20 | 3SK1112, 3SK1220 | 3SK1120, 3SK1122-.AB40 | 3SK1121-.AB40 | 3SK1121-.CB4. | 3SK1122-.CB4. | 3SK1213 |
|---|---|---|---|---|---|---|---|---|---|
| **PFHD at high demand rate according to EN 62061** | 1/h | $1.7 \times 10^{-9}$ | $1.5 \times 10^{-9}$ | $1.0 \times 10^{-9}$ | $1.3 \times 10^{-9}$ | $2.5 \times 10^{-9}$ | $3.7 \times 10^{-9}$ | $1.5 \times 10^{-9}$ | $1.0 \times 10^{-9}$ |
| **PFDavg at low demand rate according to IEC 61508** | | $1.0 \times 10^{-6}$ | | $7.0 \times 10^{-6}$ | | | | | $1.0 \times 10^{-6}$ |

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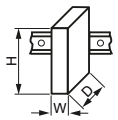
***SIRIUS 3SK2 safety relays***

| Article number | | 3SK2112-.AA10 | 3SK2122-.AA10 | 3SK2511-.FA10 |
|---|---|---|---|---|
| **General data:** | | | | |
| **Width x height x depth**   | mm | 22.5 x 100 x 124.5 | 45 x 100 x 124.5 | 22.5 x 100 x 124.5 |
| **Ambient temperature** | | | | |
| • During operation | °C | -25 ... +60 | | |
| • During storage | °C | -40 ... +80 | | -40 ... +85 |
| **Installation altitude at height above sea level, maximum** | m | 2000 | | |
| **Air pressure according to SN 31205** | kPa | 90 ... 106 | | |
| **Shock resistance** | | 15 *g*/11 ms | | |
| **Vibration resistance according to IEC 60068-2-6** | | 5 ... 500 Hz: 0.75 mm | | |
| **Degree of protection IP of the enclosure** | | IP20 | | |
| **Touch protection against electric shock** | | Finger-safe | | |
| **Insulation voltage, rated value** | V | 50 | | |
| **Impulse withstand voltage, rated value** | V | 800 | | |
| **EMC emitted interference according to IEC 60947-1** | | Class A | | |
| **Certificate of suitability** | | | | |
| • UL approval | | Yes | | |
| • TÜV approval | | Yes | | |

| Article number | | 3SK2112-.AA10 | 3SK2122-.AA10 |
|---|---|---|---|
| **Safety Integrity Level (SIL) according to IEC 62061** | | 3 | |
| **Performance Level (PL) according to ISO 13849-1** | | e | |
| **T1 value for proof test interval or service duration according to IEC 61508** | y | 20 | |
| **Switching capacity current of the semiconductor outputs at DC-13 at 24 V** | A | 4 | |
| **PFHD at high demand rate according to EN 62061** | 1/h | $1.0 \times 10^{-8}$ | $1.2 \times 10^{-8}$ |
| **PFDavg at low demand rate according to IEC 61508** | | $1.5 \times 10^{-5}$ | $1.8 \times 10^{-5}$ |

| Article number | | 3SK2511-.FA10 |
|---|---|---|
| **Transmission type for Industrial Ethernet** | | PROFINET with 100 Mbps full duplex (100BASE-TX) |
| **Number of interfaces according to PROFINET** | | 1 |
| **Type of interface Ethernet interface** | | Yes |
| **Type of interface 1 RJ45 (Ethernet) interface** | | Yes |
| **PROFINET Conformance Class** | | B |
| **Network load class according to PROFINET** | | 1 |
| **Volume of cyclic user data for PROFINET IO** | | |
| • For outputs | bit | 64 |
| • For inputs | bit | 64 |

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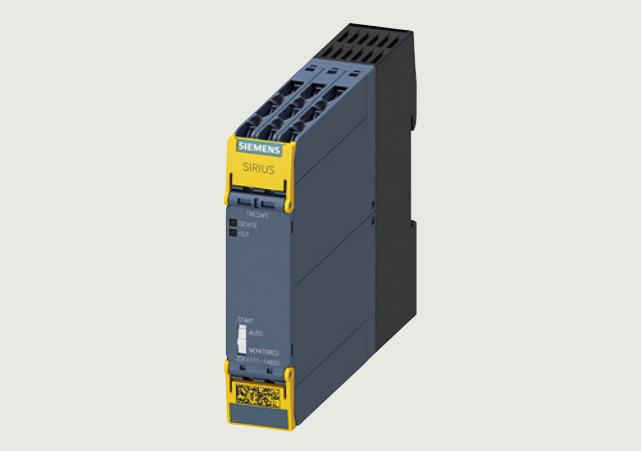
## Overview



3SK111 Standard basic units

The 3SK111 Standard basic units are characterized by simple, variable functionality. These devices are recommended for safety functions requiring only a few sensors and a small number of outputs on the safety relay.

Note:

Use of device connectors not possible.

## Selection and ordering data

**Multi-unit packaging, see page 16/7.**

3SK1111-1AB30

3SK1111-1AW20

3SK1112-1BB40

| Control supply voltage | | Number of outputs | | | | | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| at AC at 50 Hz | at DC | as contacting contact block | | | as contactless semiconductor contact block | | | | | | | |
| | | as NO contact, instantaneous switching | as NO contact, delayed switching | for signaling function, instantaneous switching | instantaneous switching | delayed switching | for signaling function, instantaneous switching | | | | | |
| V | V | | | | | | | | | | | |
| **Standard basic units** | | | | | | | | | | | | |
| 24 | 24 | 3 | 0 | 1 | 0 | 0 | 0 | **3SK1111-□AB30** | | 1 | 1 unit | 41L |
| 110 … 240 | 110 … 240 | 3 | 0 | 1 | 0 | 0 | 0 | **3SK1111-□AW20** | | 1 | 1 unit | 41L |
| -- | 24 | 0 | 0 | 0 | 2 | 0 | 1 | **3SK1112-□BB40** | | 1 | 1 unit | 41L |

**Type of electrical connection**

- Screw terminals
- Spring-loaded terminals (push-in)

1
2



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

3SK112 Advanced basic units

The 3SK112 Advanced basic units form an innovative system landscape that allows even complex safety functions with large numbers of sensors and outputs to be built up using the device connectors. It is possible to increase both the number of inputs for sensors and the number of safe outputs of the basic unit without the need for wiring outlay between the devices.

Note:

Use of device connectors possible.

## Selection and ordering data

**Multi-unit packaging, see page 16/7.**

3SK1121-1AB40

3SK1120-1AB40

3SK1122-1AB40

3SK1122-1CB41

| Control supply voltage at DC | Number of outputs as contacting contact block: as NO contact, instantaneous switching | as NO contact, delayed switching | as NC contact for signaling function, instantaneous switching | as contactless semiconductor contact block: instantaneous switching | delayed switching | for signaling function, instantaneous switching | Adjustable OFF-delay time | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V | | | | | | | s | | | | | |
| **Advanced basic units** | | | | | | | | | | | | |
| 24 | 3 | 0 | 1 | 0 | 0 | 0 | -- | **3SK1121-□AB40** | | 1 | 1 unit | 41L |
| | 2 | 2 | 0 | 0 | 0 | 0 | 0.05 ... 3 | **3SK1121-□CB41** | | 1 | 1 unit | 41L |
| | | | | | | | 0.5 … 30 | **3SK1121-□CB42** | | 1 | 1 unit | 41L |
| | | | | | | | 5 … 300 | **3SK1121-□CB44** | | 1 | 1 unit | 41L |
| 24 | 0 | 0 | 0 | 1 | 0 | 0 | -- | **3SK1120-□AB40** | | 1 | 1 unit | 41L |
| | | | | 3 | 0 | 1 | -- | **3SK1122-□AB40** | | 1 | 1 unit | 41L |
| | | | | 2 | 2 | 0 | 0.05 ... 3 | **3SK1122-□CB41** | | 1 | 1 unit | 41L |
| | | | | | | | 0.5 … 30 | **3SK1122-□CB42** | | 1 | 1 unit | 41L |
| | | | | | | | 5 … 300 | **3SK1122-□CB44** | | 1 | 1 unit | 41L |

**Type of electrical connection**

- Screw terminals
- Spring-loaded terminals (push-in)

1
2



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

3SK2 basic units

The 3SK2 basic units have a large number of inputs and outputs within a narrow width. In addition, demanding safety applications can be implemented simply with several independent safety functions. Flexible application options are enabled by powerful semiconductor outputs, as well as by expandability with additional 3SK output expansions and 3RM1 Failsafe motor starters. Flexible time functions and diagnostics options are available.

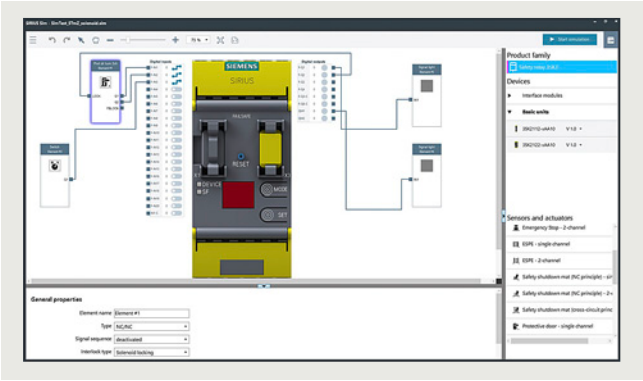
The 3SK2 basic units can be easily integrated in control systems by means of optional communications modules for the purpose of diagnostics or access via software, for example. Furthermore, system states and fault diagnostics can be displayed easily and more rapidly on site using the diagnostics module for installation in the control cabinet front.

The 22.5-mm-wide version of the 3SK2 basic units has 10 x 1-channel (5 x 2-channel) inputs, while the 45-mm-wide 3SK2 version comes with 20 x 1-channel (10 x 2-channel) inputs.

Note:

For series applications, pre-programmed memory modules with customer-specific configurations can also be created. Please contact your responsible sales partner for this purpose.

### *SIRIUS Sim 3SK2*



SIRIUS Sim 3SK2

The SIRIUS 3SK2 simulation tool can be used to quickly and easily test functions and configurations in an office environment. These configurations can then be loaded directly into real devices. Time and costs for engineering are reduced.

SIRIUS Sim 3SK2 is available free of charge as a download, see https://support.industry.siemens.com/cs/ww/en/view/109763750.

Note:

For more information, see page 14/25.

### *Starter kits*

3SK2941 starter kit

Starter kits are cost-effective complete packages for the simple creation of complex safety applications.

The 3SK2941-2AA11 basic starter kit includes:

- 3SK2112-2AA10 basic unit, 22.5 mm wide, with spring-loaded terminals (push-in)
- SIRIUS Safety ES (TIA Portal) Basic software for configuring, commissioning, operating and diagnosing available as a free download
- USB PC cable for easy transmission of the configuration to the device by means of USB

The 3SK2942-2AA11 PROFINET starter kit includes:

- 3SK2122-2AA10 basic unit, 45 mm wide, with spring-loaded terminals (push-in)
- PROFINET 3SK2511-2FA10 interface module, 22.5 mm wide, with spring-loaded terminals (push-in)
- SIRIUS Safety ES (TIA Portal) Professional
- Required cables

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## Selection and ordering data

**Multi-unit packaging, see page 16/7.**

3SK2112

3SK2122

| Control supply voltage at DC | Number of outputs as contactless semiconductor contact block | | Number of outputs to the device connector, safety-related | Width | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | safety-related 2-channel | non-safety-related | | | | | | | |
| V | | | | mm | | | | | |
| **Basic units** | | | | | | | | | |
| 24 | 2 | 1 | 2 | 22.5 | **3SK2112-□AA10** | | 1 | 1 unit | 41L |
| | 4 | 2 | 2 | 45 | **3SK2122-□AA10** | | 1 | 1 unit | 41L |

**Type of electrical connection**

- Screw terminals
- Spring-loaded terminals (push-in)

1
2

**3SK2 multi-unit packaging, see page 16/7.**

3SK2511-1FA10

3RK3511-1BA10

| Application | Width | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | mm | | | | | |
| **Interface modules** | | | | | | |
| For connecting 3SK2 safety relays via PROFINET | 22.5 | **3SK2511-□FA10** | | 1 | 1 unit | 41L |
| For connecting 3SK2 safety relays via PROFIBUS | 45 | **3RK3511-□BA10** | | 1 | 1 unit | 42B |

**Type of electrical connection**

- Screw terminals
- Spring-loaded terminals: 3RK3 or spring-loaded terminals (push-in): 3SK2

1
2

Note:

The 3UF7930-0AA00-0 connecting cable is not included in the scope of supply and must be ordered separately, see page 11/30.

| Product version | **Spring-loaded terminals (push-in)** Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Basic starter kit** | | | | | |
| Comprises 3SK2112-2AA10 basic unit, SIRIUS Safety ES (TIA Portal) as a free download and 3UF7941-0AA00-0 USB PC cable | **3SK2941-2AA11** | | 1 | 1 unit | 4N1 |
| **PROFINET starter kit** | | | | | |
| Comprises 3SK2122-2AA10 basic unit, PROFINET 3SK2511-2FA10 interface module, SIRIUS Safety ES (TIA Portal) Professional and required cables | **3SK2942-2AA11** | | 1 | 1 unit | 4N1 |

11

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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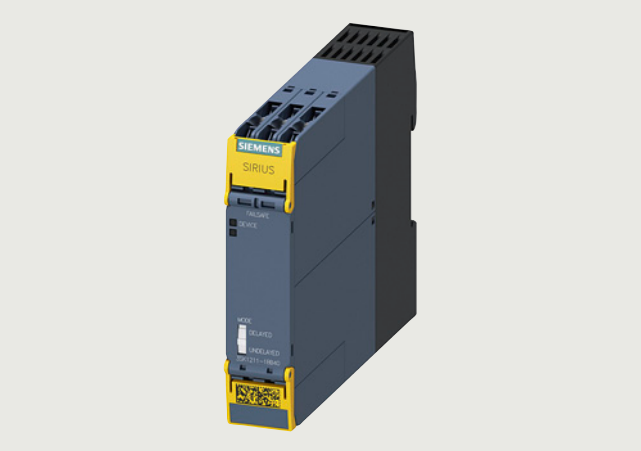
## Overview




3SK121 output expansion

The 3SK121 and 3RQ1 output expansions can be used for expanding all 3SK basic units.

***3SK1211 output expansion (up to SIL 3/PL e)***

The 3SK1211 output expansion is used to expand the safe outputs of a basic unit by adding another four safe outputs. These outputs have a switching capacity of AC-15 5 A at a switching voltage of 230 V. The devices can be connected to any 3SK basic unit by means of wiring. In addition, the devices with a 24 V DC control supply voltage can also be connected to 3SK1 Advanced basic units and 3SK2 basic units by means of the 3ZY12 device connectors.

***3SK1213 output expansion (up to SIL 3/PL e)***

The 3SK1213 output expansion is used to expand the safe outputs of a basic unit by adding three safe outputs with high switching capacity. These outputs have a switching capacity of AC-15 10 A at a switching voltage of 230 V. The devices can be connected to any 3SK basic unit by means of wiring. As with the 3SK1211, the devices with a 24 V DC control supply voltage can also be connected to 3SK1 Advanced and 3SK2 basic units by means of the 3ZY12 device connectors.

***3RQ1 output expansion (up to SIL 2/PL c or SIL 3/PL e)***

The 3RQ1 force-guided coupling relays serve as an output expansion up to SIL 2/PL c or SIL 3/PL e (depending on the version) and can be connected to all 3SK basic units by wiring and to all 3SK1 Advanced and 3SK2 basic units by using the 3ZY12 device connector. They have a switching capacity of AC-15 5 A (like the 3SK1211) at a switching voltage of 230 V and are available in widths of 17.5 mm and 22.5 mm. Furthermore, they have NC contacts with a switching capacity of AC-15 for direct switching of loads, e.g. for anti-parallel switching or signaling, see page 5/21.

Note:

It is only possible to expand the Standard basic units by means of wiring. Advanced basic units and 3SK2 basic units can be expanded using the 3ZY12 device connector.

## Benefits

- Perfect adaptation of the number of outputs
- Simple expansion of instantaneous and time-delayed safe outputs of the Advanced basic units using device connectors
- When using the device connector, the outputs on the terminals of the basic device can still be used
- Two further freely configurable shutdown functions on 3SK2 basic units when using device connectors
- Cost-effective multiplication of outputs up to SIL 2/PL c or SIL 3/PL e with 3RQ1
- Expansion with power contacts for high AC-15/DC-13 currents in the control circuit
- No wiring of the feedback circuit to the basic units is required when using device connectors
- Shorter installation times
- Less configuring and testing required

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## Selection and ordering data

**3SK1211 multi-unit packaging, see page 16/7.**

3SK1211-1BB40

3SK1213-1AB40

| Control supply voltage | | Number of outputs as contacting contact block | | | Suitable for use with 3ZY12 device connector | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| at AC at 50 Hz | at DC | as NO contact, instantaneous switching | as NO contact, delayed switching | as NC contact instantaneous switching for feedback circuit | | | | | | |
| V | V | | | | | | | | | |
| **Output expansions** | | | | | | | | | | |
| 24 | -- | 4 | 0 | 1 | No | **3SK1211-☐BB00** | | 1 | 1 unit | 41L |
| -- | 24 | 4 | 0 | 1 | Yes | **3SK1211-☐BB40** | | 1 | 1 unit | 41L |
| 110 ... 240 | 110 ... 240 | 4 | 0 | 1 | No | **3SK1211-☐BW20** | | 1 | 1 unit | 41L |
| -- | 24 | 3 | 0 | 1 | Yes | **3SK1213-☐AB40** | | 1 | 1 unit | 41L |
| 115 | -- | 3 | 0 | 1 | No | **3SK1213-☐AJ20** | | 1 | 1 unit | 41L |
| 230 | -- | 3 | 0 | 1 | No | **3SK1213-☐AL20** | | 1 | 1 unit | 41L |

**Type of electrical connection**

- Screw terminals
- Spring-loaded terminals (push-in)

1
2

Note:

The 3RQ1 force-guided coupling relays can also be used as an output expansion for 3SK and have safety levels up to SIL 2/PL c or SIL 3/PL e, see page 5/21.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

3SK1220 sensor expansion

With the input expansions

- 3SK1220 sensor expansion
- 3SK1230 power supply

the 3SK1 Advanced basic units can be made more flexible.

***3SK1220 sensor expansion***

The 3SK1220 input expansion allows additional sensors to be integrated easily and flexibly. The device monitors two 1-channel sensors or one 2-channel sensor, whatever their output technology (floating/single-ended).

Note:

The 3SK1220 sensor expansion can only be connected to the 3SK1 Advanced basic units by means of the 3ZY12 device connector, see page 11/29.

***3SK1230 power supply***

The 3SK1230 power supply makes the 3SK1 devices universally usable, whatever control supply voltage is to be used.

Note:

Alongside the 3ZY12 device connector, the 3SK1230 power supply can also be wired to act as a power supply for 3SK1 devices.

## Benefits

- A wide voltage range of 110 to 240 V AC/DC allows the devices to be used worldwide
- Low stock-keeping due to little variance
- Flexible expansion of the number of sensors without the need for additional wiring between the devices
- Perfect adaptation of the number of inputs to suit the application
- Universal use thanks to the wide range of adjustable parameters for sensor expansion (parameters as for 3SK1 Advanced basic units)

## Selection and ordering data

**Multi-unit packaging, see page 16/7.**

3SK1220-1AB40

3SK1230-1AW20

| Product version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Sensor expansions** | | | | | |
| For safety-related expansion of the 3SK1 Advanced basic units by an additional 2-channel sensor or two 1-channel sensors | **3SK1220-□AB40** | | 1 | 1 unit | 41L |
| **Power supply** | | | | | |
| For supplying 3SK1 Advanced basic units via 3ZY12 device connectors at voltages of 110 ... 240 V AC/DC | **3SK1230-□AW20** | | 1 | 1 unit | 41L |
| **Type of electrical connection** | | | | | |
| • Screw terminals | 1 | | | | |
| • Spring-loaded terminals (push-in) | 2 | | | | |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

Numerous accessories are available for 3SK, such as device connectors, terminals, cables, adapters, covers, memory and diagnostics modules or software.

Note:

The last device in a system setup, i.e. the device on the far right, requires a device termination connector.

### *Device connectors for 3SK112., 3SK12.. and 3SK2*

With the device connector, several devices of the 3SK/3RM1/3RQ1 system can be connected together.
Use of device connectors not possible with 3SK1 standard.

Device connectors are available in various versions specifically for the 3SK safety relays:

| For type | **Device connectors** | | | | **Device termination connectors** | | |
|---|---|---|---|---|---|---|---|
| | **3ZY1212-1BA00** (for 3SK1/3RQ1, width 17.5 mm) | **3ZY1212-2BA00** (for 3SK1/ 3RQ1, width 22.5 mm) | **3ZY1212-2GA00** (for 3SK2, width 22.5 mm) | **3ZY1212-4GA01** (for 3SK2, width 45 mm) | **3ZY1212-1DA00** (for 3RQ1, width 17.5 mm) | **3ZY1212-2DA00** (for 3SK1/3RQ1, width 22.5 mm) | **3ZY1212-0FA01** (for 3SK1, set for enclosures ≧ 45 mm) |
| **3SK1 Advanced basic units** | | | | | | | |
| 3SK1120 | ✓ | -- | -- | -- | -- | -- | -- |
| 3SK1121 | -- | ✓ | -- | -- | -- | ✓ | -- |
| 3SK1122 | -- | ✓ | -- | -- | -- | ✓ | -- |
| **3SK2 basic units** | | | | | | | |
| 3SK2112 | -- | -- | ✓ | -- | -- | -- | -- |
| 3SK2122 | -- | -- | -- | ✓ | -- | -- | -- |
| **Output expansions** | | | | | | | |
| 3SK1211 | -- | ✓ | -- | -- | -- | ✓ | -- |
| 3SK1213 | -- | -- | -- | -- | -- | -- | ✓ |
| 3RQ1, 17.5 mm | ✓ | -- | -- | -- | ✓ | -- | -- |
| 3RQ1, 22.5 mm | -- | ✓ | -- | -- | -- | ✓ | -- |
| **Input expansions** | | | | | | | |
| 3SK1220 | ✓ | -- | -- | -- | -- | -- | -- |
| 3SK1230 | -- | ✓ | -- | -- | -- | -- | -- |

✓ Available

-- Not available

### *Removable terminals for 3SK*

The following removable terminals are available for the 3SK safety relays for pre-wiring of the terminals in the control cabinet, or for replacing terminals:

| For type | **Removable terminals** | | | |
|---|---|---|---|---|
| | **Screw terminals** | | **Spring-loaded terminals (push-in)** | |
| | **2-pole 3ZY1121-1BA00** | **3-pole 3ZY1131-1BA00** | **2-pole 3ZY1121-2BA00** | **3-pole 3ZY1131-2BA00** |
| **3SK1 basic units** | | | | |
| 3SK1111 | -- | ✓ | -- | ✓ |
| 3SK1112 | ✓ | -- | ✓ | -- |
| 3SK1120 | -- | ✓ | -- | ✓ |
| 3SK1121 | -- | ✓ | -- | ✓ |
| 3SK1122 | ✓ bottom | ✓ top | ✓ bottom | ✓ top |
| **3SK2 basic units** | | | | |
| 3SK2112 | -- | ✓ | -- | ✓ |
| 3SK2122 | -- | ✓[1)] | -- | ✓[1)] |
| **Output expansions** | | | | |
| 3SK1211 | ✓ | -- | ✓ | -- |
| 3SK1213 | -- | -- | -- | -- |
| **Input expansions** | | | | |
| 3SK1220 | -- | ✓ top | -- | ✓ top |
| 3SK1230 | ✓ bottom | -- | ✓ bottom | -- |

✓ Available

-- Not available

[1)] Two sets of terminals are required for 3SK2122.

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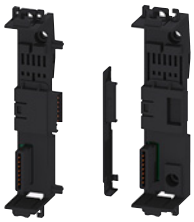
## Accessories

### Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Device connectors for the electrical connection of SIRIUS devices in the industrial DIN-rail enclosure** | | | | | |
|  3ZY1212 -1BA00 3ZY1212 -2DA00 | | | | | |
| **Device connectors for 3SK1/3RQ1** | | | | | |
| • Width 17.5 mm | **3ZY1212-1BA00** | | 1 | 1 unit | 41L |
| • Width 22.5 mm | **3ZY1212-2BA00** | | 1 | 1 unit | 41L |
| **Device connectors for 3SK2** | | | | | |
| • Width 22.5 mm | **3ZY1212-2GA00** | | 1 | 1 unit | 41L |
| • Width 45 mm | **3ZY1212-4GA01** | | 1 | 1 unit | 41L |
| **Device connectors for 3RM1** | | | | | |
| • Width 22.5 mm | **3ZY1212-2EA00** | | 1 | 1 unit | 41L |
| **Device termination connectors** | | | | | |
| • for 3SK1/3RQ1, width 22.5 mm | **3ZY1212-2DA00** | | 1 | 1 unit | 41L |
| • for 3RQ1, width 17.5 mm | **3ZY1212-1DA00** | | 1 | 1 unit | 41L |
| • for 3RM1, width 22.5 mm | **3ZY1212-2FA00** | | 1 | 1 unit | 41L |
| Note: Positions of the slide switch, see Equipment Manual for 3SK1. | | | | | |
| **Device daisy chain connectors** For 3SK/3RQ1/3RM1, 24 V DC, 22.5 mm, for implementation of distances between devices according to the installation guidelines | **3ZY1212-2AB00** | | 1 | 1 unit | 41L |
| **Device connectors** For height adjustment for devices without electrical connection via device connector, with a width of 22.5 mm or greater | **3ZY1210-2AA00** | | 1 | 1 unit | 41L |
| **Device termination connector set** For 3SK1213, width > 45 mm, comprising 3ZY1212-2FA00 and 3ZY1210-2AA00 | **3ZY1212-0FA01** | | 1 | 1 unit | 41L |
| **Terminals for SIRIUS devices in the industrial DIN-rail enclosure** | | | | | |
| 3ZY1121-2BA00 | | | | | |
| **Removable terminals** | **Screw terminals** | | | | |
| • Screw terminals up to 2 x 1.5 mm² or 1 x 2.5 mm² | | | | | |
| - 2-pole | **3ZY1121-1BA00** | | 1 | 6 units | 41L |
| - 3-pole[1] | **3ZY1131-1BA00** | | 1 | 6 units | 41L |
| - 4-pole | **3ZY1141-1BA00** | | 1 | 6 units | 41L |
| | **Spring-loaded terminals (push-in)** | | | | |
| • Push-in terminals up to 2 x 1.5 mm² | | | | | |
| - 2-pole | **3ZY1121-2BA00** | | 1 | 6 units | 41L |
| - 3-pole[1] | **3ZY1131-2BA00** | | 1 | 6 units | 41L |
| - 4-pole | **3ZY1141-2BA00** | | 1 | 6 units | 41L |
| **PC cables for 3SK2 (essential accessory)** | | | | | |
| 3UF7941-0AA00-0 | | | | | |
| **USB PC cables** For connecting to the USB interface of a PC/PG, for communication with 3SK2 through the system interface, recommended for use in connection with 3SK2 | **3UF7941-0AA00-0** | | 1 | 1 unit | 42J |
| **Connecting cables for 3SK2 (essential accessory for diagnostics/interface modules)** | | | | | |
| 3UF7932-0AA00-0 | | | | | |

For connecting diagnostics/interface modules to 3SK2 basic unit

| Central unit with interface module | Diagnostics module with central unit or interface module | Length | | | | |
|---|---|---|---|---|---|---|
| ✓ | -- | • 0.025 m (flat) | **3UF7930-0AA00-0** | 1 | 1 unit | 42J |
| -- | ✓ | • 0.1 m (flat) | **3UF7931-0AA00-0** | 1 | 1 unit | 42J |
| -- | ✓ | • 0.15 m (flat) | **3UF7934-0AA00-0** | 1 | 1 unit | 42J |
| -- | ✓ | • 0.3 m (flat) | **3UF7935-0AA00-0** | 1 | 1 unit | 42J |
| -- | ✓ | • 0.5 m (flat) | **3UF7932-0AA00-0** | 1 | 1 unit | 42J |
| -- | ✓ | • 0.5 m (round) | **3UF7932-0BA00-0** | 1 | 1 unit | 42J |
| -- | ✓ | • 1.0 m (round) | **3UF7937-0BA00-0** | 1 | 1 unit | 42J |
| -- | ✓ | • 2.5 m (round) | **3UF7933-0BA00-0** | 1 | 1 unit | 42J |

[1] For 3SK2122 two terminal sets are required.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Operating and monitoring modules for 3SK2** | | | | | | |
| 3SK2611-3AA00 | **Diagnostics modules**<br>For direct display of errors, e.g. of cross-circuits<br>Note:<br>The 3RK3611-3AA00 MSS diagnostics module cannot be operated on the 3SK2 devices. | **3SK2611-3AA00** | | 1 | 1 unit | 41L |
| **Door adapters for 3SK2** | | | | | | |
| 3UF7920-0AA00-0 | For external connection of the system interface, e.g. outside a control cabinet | **3UF7920-0AA00-0** | | 1 | 1 unit | 42J |
| **Interface covers for 3SK2** | | | | | | |
| 3RA6936-0B | For system interface, titanium gray | **3RA6936-0B** | | 1 | 5 units | 42F |
| **Memory modules for 3SK2** | | | | | | |
| 3RK3931-0AA00 | For backing up the complete parameterization of the 3SK2 safety system without a PC/PG through the system interface | **3RK3931-0AA00** | | 1 | 1 unit | 42C |
| **Software for 3SK2** | | | | | | |
| 3ZS1326-2C.10-0Y.5 | **SIRIUS Safety ES (TIA Portal)**<br>Software for configuring, commissioning, operating and diagnosing of 3SK2, see page 14/22 or www.siemens.com/product?3ZS1. | | | | | |
| | **SIRIUS Sim 3SK2**<br>Available free of charge as a download for simulating configurations, see page 14/25 or https://support.industry.siemens.com/cs/ww/en/view/109763750 | | | | | |
| **Accessories for enclosures** | | | | | | |
| 3ZY1321-2AA00 | **Sealing covers**<br>• 17.5 mm (for 3SK1120 and 3SK1220)<br>• 22.5 mm (for all 3SK1 devices except 3SK1120 and 3SK1220) | **3ZY1321-1AA00**<br>**3ZY1321-2AA00** | | 1<br>1 | 5 units<br>5 units | 41L<br>41L |
| 3ZY1311-0AA00 | **Push-in lugs**<br>For wall mounting | **3ZY1311-0AA00** | | 1 | 10 units | 41L |
| 3ZY1440-1AA00 | **Coding pins**<br>For removable terminals of SIRIUS devices in the industrial DIN-rail enclosure; enable the mechanical coding of terminals | **3ZY1440-1AA00** | | 1 | 12 units | 41L |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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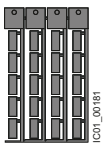
## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Accessories for enclosures (continued)** | | | | | | |
| 3ZY1450-1AB00 | **Hinged covers**<br>Replacement covers, without terminal labeling<br>• Titanium gray | | | | | |
| | - 22.5 mm wide (for 3SK1230, 3SK2511) | **3ZY1450-1AB00** | | 1 | 5 units | 41L |
| | • Yellow | | | | | |
| | - 17.5 mm wide (for 3SK1220, 3SK1120) | **3ZY1450-1BA00** | | 1 | 5 units | 41L |
| | - 22.5 mm wide (for 3SK11 except 3SK1120, 3SK1211, 3SK2112) | **3ZY1450-1BB00** | | 1 | 5 units | 41L |
| 3ZY1450-1BB00 | - 45 mm wide (for 3SK2122) | **3ZY1450-1BC00** | | 1 | 5 units | 41L |
| **Blank labels** | | | | | | |
|  3RT2900-1SB20 | **Unit labeling plates**[1]<br>For SIRIUS devices | | | | | |
| | • 10 mm x 7 mm, titanium gray | **3RT2900-1SB10** | | 100 | 816 units | 41B |
| | • 20 mm x 7 mm, titanium gray | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | |
| 3RA2908-1A | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals (push-in)** | | | | |
| | Length approx. 200 mm, 3.0 mm x 0.5 mm, titanium gray/black, partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

[1] PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

SIRIUS 3TK2810 safety relays

**More information**

Homepage, see www.siemens.com/sirius-monitor
Industry Mall, see www.siemens.com/product?3TK28

### *3TK2810-0 standstill monitors*

The standstill monitor increases safety in hazardous areas. Without a sensor, it detects motor stoppage from the residual magnetization of the rotating motor. When an adjustable threshold value is undershot, it uses its outputs to allow access to hazardous areas, for example by unlocking a protective door.

### *3TK2810-1 speed monitors*

The speed monitor combines two safety functions in one unit by continuously monitoring machines and plants for standstill and speed.

Through simple parameterization and permanent diagnostics on the display, faults can be quickly remedied at any time – often before they cause plant downtimes.

In addition to standstill and speed monitoring, the unit also features an integrated monitoring function of a protective door with spring-loaded interlocking. Therefore, an additional evaluation unit is not needed. In addition, it can be protected against unwanted changes by the optionally activatable parameterization lock.

### *Article number scheme*

| Product versions | | Article number | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Safety relays with special functions** | | **3TK2810** | **–** | **□** | **□** | **A** | **□** | **□** | | |
| Device version | Standstill monitor | | | **0** | | | | | | |
| | Speed monitor for NPN/PNP proximity switches and encoders | | | **1** | | | | | | |
| Type of control supply voltage | 24 V DC | | | | **B** | | | | | |
| | 230 V AC, 50/60 Hz | | | | **G** | | | | | |
| | 400 V AC, 50/60 Hz | | | | **J** | | | | | |
| | 120 ... 240 V AC/DC; 50/60 Hz | | | | **K** | | | | | |
| Time delay | 0.2 ... 6 s (standstill) | | | | | | **0** | | | |
| | 0 … 999 s (release delay) | | | | | | **4** | | | |
| Connection type | Screw terminals | | | | | | | **1** | | |
| | Spring-loaded terminals | | | | | | | **2** | | |
| Version | Speed monitor for NAMUR proximity switches and encoders | | | | | | | | **– 0 A A 0** | |
| Example | | **3TK2810** | **–** | **0** | **B** | **A** | **0** | **1** | | |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

## Benefits

### *3TK2810-0 standstill monitors*

- No additional sensors required
- Signaling of faults with diagnostics display
- Standstill time can be set
- Unit can be used with frequency converters

### *3TK2810-1 speed monitors*

- Menu-prompted, easy parameterization
- Direct diagnostics on the display means shorter downtimes thanks to early fault detection
- Integrated protective door monitoring means greater safety because access to the plant is allowed only in the safe state
- Suitable for all standard sensors, i.e. high flexibility

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## With special functions

### Technical specifications

**More information**

Operating Instructions 3TK2810-0, see
https://support.industry.siemens.com/cs/ww/en/view/25437254
Equipment Manual for 3TK2810-1, see
https://support.industry.siemens.com/cs/ww/en/view/43707376
Technical specifications, see
https://support.industry.siemens.com/cs/ww/en/ps/16391/td
FAQs, see
https://support.industry.siemens.com/cs/ww/en/ps/16391/faq

| Type | 3TK2810-0 standstill monitors | 3TK2810-1 speed monitors |
|---|---|---|
| **Sensors** | | |
| • Inputs | 3 | 4 |
| • Electronic | -- | 3 |
| • With contacts | -- | 1 |
| • Without sensors (measuring inputs) | 3 | -- |
| • Magnetically operated switch (Reed contacts) | -- | -- |
| **Safety mats** | -- | -- |
| **Start** | | |
| • Auto | ✓ | ✓ |
| • Monitored | -- | ✓ |
| **Cascading input 24 V DC** | -- | -- |
| **Key-operated switch** | -- | -- |
| **Enabling circuit, floating** | | |
| • Stop category 0 | 3 NO + 1 NC | 2 |
| • Stop category 1 | -- | -- |
| **Enabling circuit, electronic** | | |
| • Stop category 0 | -- | -- |
| • Stop category 1 | -- | -- |

| Type | 3TK2810-0 standstill monitors | 3TK2810-1 speed monitors |
|---|---|---|
| **Signaling outputs** | | |
| • Floating | 1 CO | -- |
| • Electronic | 2 | 2 |
| **Standards** | IEC 60204-1, ISO 12100, ISO 13849-1, IEC 62061/IEC 61508 | IEC 60947-5-1, ISO 13849-1, IEC 60204-1, IEC 62061/IEC 61508 |
| **Test certificates** | TÜV, UL, CSA | TÜV, UL, CSA |
| **SIL level max. according to IEC 62061/IEC 61508** | 3 | 3 |
| **Performance Level (PL) according to ISO 13849-1** | e | e |
| **Probability of a dangerous failure per hour ($PFH_d$)** | $1.5 \times 10^{-8}$ 1/h | $3.38 \times 10^{-9}$ 1/h |
| **Rated control supply voltage** | | |
| • 24 V DC | ✓ | ✓ |
| • 230 V AC | ✓ | -- |
| • 400 V AC | ✓ | -- |
| • 120 ... 240 V AC/DC | -- | ✓ |

✓ Available
-- Not available

### Selection and ordering data

PU (UNIT, SET, M) = 1
PS* = 1 unit
PG = 41L

3TK2810-0BA01

3TK2810-1BA41

| Rated control supply voltage $U_s$ | Times | Screw terminals | | Spring-loaded terminals | |
|---|---|---|---|---|---|
| | | Article No. | Price per PU | Article No. | Price per PU |
| V | s | | | | |
| **Standstill monitors** | | | | | |
| **3TK2810-0** | | | | | |
| • 24 DC | 0.2 ... 6 (standstill) | **3TK2810-0BA01** | | **3TK2810-0BA02** | |
| • 230 AC | 0.2 ... 6 (standstill) | **3TK2810-0GA01** | | **3TK2810-0GA02** | |
| • 400 AC | 0.2 ... 6 (standstill) | **3TK2810-0JA01** | | **3TK2810-0JA02** | |
| **Speed monitors** | | | | | |
| **3TK2810-1 for NPN/PNP proximity switches and encoders** | | | | | |
| • 24 DC | 0 ... 999 (release delay) | **3TK2810-1BA41** | | **3TK2810-1BA42** | |
| • 120 ... 240 AC/DC | 0 ... 999 (release delay) | **3TK2810-1KA41** | | **3TK2810-1KA42** | |
| **3TK2810-1 for NAMUR proximity switches and encoders** | | | | | |
| • 24 DC | 0 ... 999 (release delay) | **3TK2810-1BA41-0AA0** | | **3TK2810-1BA42-0AA0** | |
| • 120 ... 240 AC/DC | 0 ... 999 (release delay) | **3TK2810-1KA41-0AA0** | | **3TK2810-1KA42-0AA0** | |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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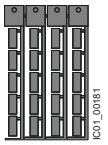
## Selection and ordering data

| | Use | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Push-in lugs** | | | | | | | |
| 3RP1903 | For 3TK28 | **Push-in lugs**<br>For screw fixing,<br>2 units are required for each device | **3RP1903** | | 1 | 10 units | 41H |
| **Adapters and connecting cables for speed monitors** | | | | | | | |
| | For 3TK2810-1 | **Adapters**<br>For connecting encoders of type Siemens/Heidenhain | | | | | |
| 3TK2810-1A | | • 15-pole | **3TK2810-1A** | | 1 | 1 unit | 41L |
| 3TK2810-1B | | • 25-pole | **3TK2810-1B** | | 1 | 1 unit | 41L |
| 3TK2810-0A | For 3TK2810-1 | **Connecting cables**<br>For connecting the speed monitor to the 3TK2810-1A or 3TK2810-1B adapter | **3TK2810-0A** | | 1 | 1 unit | 41L |
| **Blank labels** | | | | | | | |
|  3RT2900-1SB20 | For SIRIUS devices | **Unit labeling plates**<br>20 mm x 7 mm, titanium gray[1)] | **3RT2900-1SB20** | | 100 | 340 units | 41B |
| **Tools for opening spring-loaded terminals** | | | | | | | |
| 3RA2908-1A | For auxiliary circuit connections | **Screwdrivers**<br>For all SIRIUS devices with spring-loaded terminals | **Spring-loaded terminals** | | | | |
| | | Length approx. 200 mm,<br>3.0 mm x 0.5 mm,<br>titanium gray/black,<br>partially insulated | **3RA2908-1A** | | 1 | 1 unit | 41B |

1) PC labeling system for individual inscription of unit labeling plates available from: murrplastik Systemtechnik GmbH, see page 16/18.

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## Notes

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**Price groups**
PG 41K, 41L, 42A, 42D, 250, 572

12/2 **Introduction**

**SIRIUS 3SE5 mechanical position switches**
12/5 General data
3SE5, plastic enclosures
12/14 - Enclosure width 31 mm according to EN 50047
12/20 - Enclosure width 40 mm according to EN 50041
12/24 - Enclosure width 50 mm
3SE5, metal enclosures
12/27 - Enclosure width 31 mm according to EN 50047
12/31 - Enclosure width 40 mm according to EN 50041
12/36 - Enclosure width 56 mm
12/40 - Enclosure width 56 mm, XL
12/43 - Compact design
3SE5, open-type design
12/45 - Enclosure width 30 mm
Accessories and spare parts
12/46 - Accessories NEW
12/48 - Optional accessories and spare parts

**SIRIUS 3SE5, 3SE2 mechanical safety switches**
With separate actuator
12/50 General data
12/53 3SE5, plastic enclosures
12/56 3SE5, metal enclosures
12/58 Accessories
12/60 3SE2, plastic enclosures
With tumbler
12/61 General data
12/65 3SE5, plastic enclosures with locking force greater than 1 200 N
12/67 3SE5, metal enclosures with locking force greater than 2 000 N
12/68 Accessories NEW

**SIRIUS 3SE5, 3SE2 mechanical safety hinge switches**
12/70 General data
12/71 3SE5, plastic enclosures
12/73 3SE5, metal enclosures
3SE2, plastic enclosures
12/74 - With integrated hinge

**SIRIUS 3SE5 mechanical position switches for ambient temperatures down to -40 °C**
Shock and vibration test
SIRIUS 3SE5 mechanical position switches
12/75 - 3SE5, plastic enclosures
SIRIUS 3SE5 mechanical safety switches with tumbler
12/76 - 3SE5, plastic enclosures
SIRIUS 3SE5 mechanical safety hinge switches
12/77 - 3SE5, plastic enclosures
Shock and vibration test according to railway standard
SIRIUS 3SE5 mechanical position switches
12/78 - 3SE5, plastic enclosures
12/81 - 3SE5, metal enclosures
SIRIUS 3SE5 mechanical safety switches with separate actuator
12/86 - 3SE5, plastic enclosures/metal enclosures
SIRIUS 3SE5 mechanical safety switches with tumbler
12/87 - 3SE5, plastic enclosures

**SIRIUS 3SE safety switches and 3SU1 EMERGENCY STOP enclosures for PROFIsafe connection**
12/88 Safety cabling in the field with IP67

**SIRIUS 3SF1 mechanical safety switches for AS-Interface**
12/93 General data
12/96 3SF1, plastic enclosures
12/98 3SF1, metal enclosures
With separate actuator
12/102 General data
12/104 3SF1, plastic enclosures
12/105 3SF1, metal enclosures
12/106 Accessories
With tumbler
12/107 General data
12/109 3SF1, plastic enclosures with locking force greater than 1 200 N
12/110 3SF1, metal enclosures with locking force greater than 2 000 N
Safety hinge switches
12/111 3SF1, plastic enclosures
12/112 3SF1, metal enclosures

**SIRIUS 3SE6 non-contact safety switches**
12/113 3SE66, 3SE67 magnetically operated switches
12/119 3SE63 RFID safety switches
12/122 3SE64 RFID safety switches with tumbler NEW

13/156 **SIRIUS 3SE7 cable-operated switches**

13/161 **SIRIUS 3SE2, 3SE3 foot switches**

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## Introduction

### Overview

| | 3SE523., 3SE521., 3SF12.4 | 3SE524., 3SF1244 | 3SE513., 3SE511., 3SF1114 | 3SE512., 3SF1124 | 3SE516. | 3SE5413, 3SE5423 | 3SE5250 |
|---|---|---|---|---|---|---|---|
| | **Position switches** | | | | | | |
| | **Standard** | | | | | **Compact design** | **Open-type** |
| **Enclosure** | | | | | | | |
| Plastic | ✓ | | | -- | | -- | ✓ |
| Metal | ✓ | -- | ✓ | | | ✓ | -- |
| Dimensions (W x H x D) in mm | 31 x 68 x 33 | 50 x 53 x 33 | 40 x 78 x 38 | 56 x 78 x 38 | 56 x 100 x 38 | 30 x 50 x 16<br>40 x 50 x 16 | 30 x 48.5 x 20 |
| Degree of protection | IP65, IP66/IP67 | IP66/IP67 | | | | IP66/IP67 | IP10 or IP20 |
| **Standards**<br>IEC 60947-5-1 | Mounting and operating points according to EN 50047 | Operating points according to EN 50047 | Mounting and operating points according to EN 50041 | Operating points according to EN 50041 | | -- | Mounting and operating points according to EN 50047 |
| **Approvals** | CE, TÜV, UL, CSA, CCC | | | | | CE, UL, CSA, CCC | CE, TÜV, UL, CSA, CCC |
| **Contact blocks** | | | | | | | |
| 2 slow-action contacts | 1 NO + 1 NC; 2 NC | | | | 2 × (1 NO + 1 NC) | -- | 1 NO + 1 NC |
| 2 snap-action contacts | 1 NO + 1 NC | | | | 2 × (1 NO + 1 NC) | 1 NO + 1 NC | 1 NO + 1 NC |
| • Short stroke | 1 NO + 1 NC | | ✓ | | -- | -- | ✓ |
| • Contact distance 2 x 2 mm | 1 NO + 1 NC | | ✓ | | -- | -- | ✓ |
| 3 slow-action contacts | 1 NO + 2 NC; 2 NO + 1 NC | | | | -- | -- | 1 NO + 2 NC; 2 NO + 1 NC |
| • With make-before-break | 1 NO + 2 NC | | | | 2 x (1 NO + 2 NC) | -- | 1 NO + 2 NC |
| 3 snap-action contacts | 1 NO + 2 NC | | | | -- | -- | 1 NO + 2 NC |
| **Special features** | | | | | | | |
| LED status display | ✓ | | | | -- | -- | -- |
| Increased corrosion protection | ✓ | | | | | -- | -- |
| ASIsafe integrated | ✓ | | | | -- | -- | -- |
| **Electrical specifications** | | | | | | | |
| Insulation voltage $U_i$ | 400 V | | | | | 400 V | 400 V |
| Conventional thermal current $I_{th}$ | 6 A/10 A (3-/2-pole) | | | | | 10 A | 6 A |
| **Connections** | | | | | | | |
| Cable entry | 1 x (M20 x 1.5) | 2 x (M20 x 1.5) | 1 x (M20 x 1.5) | 3 x (M20 x 1.5) | | -- | -- |
| M12 plug, 4-, 5- or 8-pole | ✓ | | | | | ✓ | -- |
| Plug, 6-pole + PE | -- | | ✓ | | -- | -- | -- |
| Molded cables | -- | | | | | ✓ | -- |
| **Actuators** | | | | | | | |
| Rounded plungers and roller plungers | ✓ | | | | | -- | -- |
| Roller levers and angular roller levers | ✓ | | | | | -- | -- |
| Spring rod | ✓ | | | | -- | -- | -- |
| Twist levers and rod levers | ✓ | | | | | -- | -- |
| Fork lever | -- | | ✓ | | -- | -- | -- |
| Hinge switches | -- | | | | | -- | -- |
| Plungers, twist levers | -- | | | | ✓ | ✓ | ✓ |
| **Page** | | | | | | | |
| Complete units | 12/14, 12/27 | 12/24 | 12/20, 12/31 | 12/36 | 12/40 | 12/44 | 12/45 |
| Modular system | 12/18, 12/29 | 12/25 | 12/22, 12/34 | 12/38 | 12/41 | -- | -- |
| Ambient temperature -40 °C | 12/75, 12/80 | 12/80 | 12/80 | 12/83 | 12/84 | -- | -- |
| ASIsafe | 12/96, 12/98 | 12/96 | 12/100 | 12/100 | -- | -- | -- |

✓ Available

-- Not available

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| | 3SE5232, 3SE5212, 3SF12.4 | 3SE5132, 3SE5112, 3SF11.4 | 3SE5232, 3SE5242, 3SF12.4 | 3SE5112, 3SE5122, 3SF11.4 | 3SE5322, 3SE5312, 3SF13.4 |
|---|---|---|---|---|---|
| | **Safety hinge switches** | | **Safety switches with separate actuator** | | **Safety switches with tumbler** |
| **Enclosure** | | | | | |
| Plastic | ✓ | | ✓ | | ✓ |
| Metal | ✓ | | ✓ | | ✓ |
| Dimensions (W x H x D) in mm | 31 x 68 x 33 | 40 x 78 x 38 | 31 x 68 x 33, 50 x 53 x 33 | 40 x 78 x 38, 56 x 78 x 38 | 54 x 185 x 44 |
| Degree of protection | IP65, IP66/IP67 | IP66/IP67 | IP65, IP66/IP67 | IP66/IP67 | IP66/IP67, IP69 |
| **Standards** IEC 60947-5-1 | Mounting and operating points according to EN 50047 | Mounting and operating points according to EN 50041 | Mounting and operating points according to EN 50047 | Mounting according to EN 50041 | ISO 14119, IEC 62061/IEC 61508, ISO 13849-1 |
| **Approvals** | CE, TÜV, UL, CSA, CCC | | CE, TÜV, UL, CSA, CCC | | CE, TÜV, UL, CSA, CCC |
| **Contact blocks/outputs** | | | | | |
| 2 slow-action contacts | -- | | 1 NO + 1 NC; 1 NO + 2 NC | | -- |
| 2 snap-action contacts | 1 NO + 1 NC | | -- | | -- |
| • Short stroke | -- | | -- | | -- |
| • Contact distance 2 x 2 mm | -- | | -- | | -- |
| 3 slow-action contacts | -- | | 1 NO + 2 NC | | 2 x (1 NO + 2 NC) |
| • With make-before-break | -- | | -- | | -- |
| 3 snap-action contacts | 1 NO + 2 NC | | -- | | -- |
| Electronic safety outputs | -- | | -- | | -- |
| **Special features** | | | | | |
| LED status display | ✓ | | ✓ | | ✓ |
| Increased corrosion protection | ✓ | | ✓ | | ✓ |
| ASIsafe integrated | ✓ | | ✓ | | ✓ |
| **Electrical specifications** | | | | | |
| Insulation voltage $U_i$ | 400 V | | 400 V | | 400 V |
| Conventional thermal current $I_{th}$ | 6 A/10 A (3-/2-pole) | | 6 A | | 6 A |
| **Connections** | | | | | |
| Cable entry | 1 x (M20 x 1.5) | | 1 x (M20 x 1.5), 2 x (M20 x 1.5) | 1 x (M20 x 1.5), 3 x (M20 x 1.5) | 3 x (M20 x 1.5) |
| M12 plug, 4-, 5- or 8-pole | ✓ | | ✓ | | ✓ |
| Molded cables | -- | | -- | | -- |
| AS-Interface | -- | | ✓ | | ✓ |
| **Actuators** | | | | | |
| Plungers, twist levers | -- | | -- | | -- |
| Separate actuators | -- | | ✓ | | ✓ |
| Hinge switches | ✓ | | -- | | -- |
| **Page** | | | | | |
| Complete units | 12/71 | 12/71, 12/73 | 12/53, 12/56 | 12/54, 12/57 | 12/65 ... 12/67 |
| Modular system | -- | -- | -- | -- | -- |
| Ambient temperature -40 °C | 12/77 | -- | 12/86 | -- | 12/87 |
| ASIsafe | 12/111 | 12/112 | 12/104 | 12/105 | 12/109, 12/110 |

✓ Available

-- Not available

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## Introduction

| | 3SE66, 3SE67 | 3SE66, 3SE67 | 3SE63 | 3SE64 |
|---|---|---|---|---|
| | Non-contact safety switches Magnetically operated switches | | RFID safety switches[1] | |
| | | Supplementary range[1] | Standard | With tumbler |
| **Enclosure** | | | | |
| Plastic | ✓ | | ✓ | |
| Metal | -- | | -- | |
| Dimensions (W x H x D) in mm | M30; 25 x 88; 25 x 33 | 25 x 88; 26 x 36 | 25 x 91 x 22 | 87 x 120 x 34 |
| Degree of protection | IP67 | | IP69 | |
| **Standards** | IEC 60947-5-3 | | ISO 14119, IEC 60947-5-3, SIL 3 according to IEC 62061/IEC 61508, PL e according to ISO 13849-1 | |
| **Approvals** | CE, TÜV, UL, CSA, CCC | CE, TÜV, UL, CSA | CE, TÜV, UL, CSA | |
| **Contact blocks/outputs** | | | | |
| Reed contacts | 1 NO + 1 NC<br>2 NC<br>1 NO + 1 NC (+ 1 NC signaling contact) | 1 NO + 1 NC (+ 1 NC signaling contact)<br>2 NC<br>2 NC (+ 1 NC signaling contact) | -- | |
| **Special features** | | | | |
| LED status display | -- | ✓ | ✓ | |
| Increased corrosion protection | -- | | ✓ | |
| ASIsafe integrated | -- | | -- | |
| **Electrical specifications** | | | | |
| Insulation voltage $U_i$ | 100 V AC/DC<br>24 V DC | 75 V DC<br>50 V AC | -- | |
| Conventional thermal current $I_{th}$ | 250 mA<br>400 mA | 250 mA | -- | |
| **Connections** | | | | |
| M8 plug, 4-pole | ✓ | | -- | |
| ∅ 8 mm, latching connection, plug, 6-pole | -- | ✓ | -- | |
| M12 plug, 4-pole | ✓ | -- | -- | |
| M12 plug, 8-pole | -- | | ✓ | |
| Molded cables | ✓ | | -- | |
| AS-Interface | -- | | -- | |
| **Actuators** | | | | |
| RFID | -- | | ✓ | |
| Switching solenoid | ✓ | | -- | |
| **Page** | 12/113 | | 12/119 | 12/122 |

✓ Available

-- Not available

[1] CCC approval not required for voltages < 36 V.

Note:

Safety characteristics, see page 16/9.

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## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-position-switches | Configuration Manual, see https://support.industry.siemens.com/cs/ww/en/view/43920150 |
| Industry Mall, see www.siemens.com/product?3SE | For brochure, see https://support.industry.siemens.com/cs/ww/en/view/109811407 |
| Configurator, see www.siemens.com/sirius/configurators | |
| Conversion tool, see www.siemens.com/conversion-tool | |

Our SIRIUS 3SE5 position switches are modern, compact and modular in design and simple to connect. They save time and increase flexibility during installation of a whole range of switch variants. In principle it is possible to combine any enclosure with any operating mechanism, paying due consideration to the EN 50041 and EN 50047 standards where necessary.

### *Complete units*

Popular versions of the position switches in standard enclosures are available as complete units.

3SE5 position switches with plastic and metal enclosures

### *Modular system*

The 3SE5 series is the modular system comprising different sizes of the basic switch and an actuator which must be ordered separately. Thanks to the modular design of the switch the user can select the right solution for his application from numerous versions and install it himself in a very short time.

Simple plug-in mounting enables fast replacement of the actuator heads.

Examples of selection options in the modular system

### *Service box for SIRIUS 3SE5 position switches*

Service box with basic switches, actuator heads and accessories

For the most common applications for quick replacement as part of maintenance or for many first applications, a service box 3SX5110-0BK can be ordered for the SIRIUS 3SE5 position switches in the modular system.

This contains a selection of basic switches, actuator heads and accessories for various possible combinations.

213 tested combinations of 22 individual products are possible. The standard interface enables simple replacement of the actuator heads by plug-in mounting. The actuator heads can be rotated in steps of 16 x 22.5°.

For more information, see page 12/46.

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## General data

### *Design*

All enclosure variants have an integrated chlorinated rubber diaphragm for high functional safety in cold and aggressive environments.

Enclosure sizes

The 3SE5 switches are available in five different enclosure sizes with 2 or 3 contacts and with the XL enclosure:

- Open-type position switch IP20 or IP10
- Plastic enclosures according to EN 50047, 31 mm wide, IP65, 1 cable entry
- Metal enclosures according to EN 50047, 31 mm wide, IP66/IP67, 1 cable entry
- Plastic and metal enclosures according to EN 50041, 40 mm wide, IP66/IP67, 1 cable entry
- Plastic enclosures, 50 mm wide, IP66/IP67, 2 cable entries
- Metal enclosures, 56 mm wide, IP66/IP67, 3 cable entries
- XL metal enclosures with 4 to 6 contacts, 56 mm wide, IP66/IP67, 3 cable entries

Enclosure versions

Various basic switches can be selected for the enclosures of the 3SE5 series:

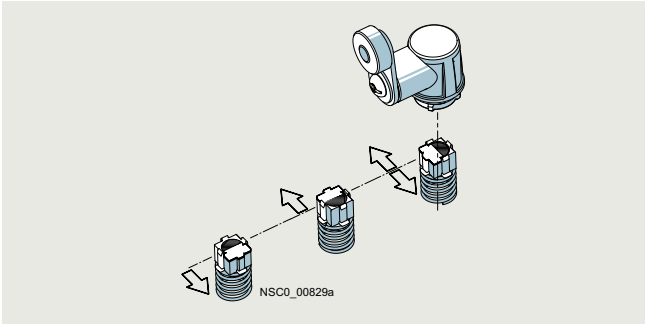
- With contact blocks with two or three contact elements (screw terminals) designed as slow-action or snap-action contacts; the slow-action contacts also with make-before-break
- Optional LED status display
- With assembled M12 device plug, 4- or 5-pole (available as an accessory for self-assembly for the wide enclosure)
- With 6-pole device plug + PE on the metal enclosures
- Versions with increased corrosion protection
- Versions for operating temperatures down to -40 °C
- AS-Interface version with integrated ASIsafe electronics for all enclosure designs (see page 12/93)

Actuator variants

All actuators can be rotated around the axis in increments of 16 x 22.5°. The following actuator variants are available:

- Plain, rounded and roller plungers
- Roller levers and angular roller levers
- Spring rod
- Twist levers and rod levers with twist actuator
- Fork levers with twist actuator

The actuator rollers are available with various materials and diameters.




Twist actuator for twist levers and rod actuators, with setting of switching direction to right, left or right/left (standard for all twist actuators except fork levers)

### *Cover design*

The mechanical position switches have a turquoise cover and the mechanical safety switches have a yellow cover.

Cover colors: position switches turquoise, safety switch yellow

On request the switches can be delivered ex works with a yellow cover. The cover has no effect on the mode of operation. Both versions can be used in safety applications (see also page 12/16).

### *Diverse contact types*

Exchangeable 2-pole and 3-pole contact blocks for all enclosure sizes.

Contact block for position switches, 3 contacts

The 3-pole contact block with snap-action or slow-action contacts is regularly available for all enclosure forms. The same installation space is required as for a 2-pole block. The version with 1 NO + 2 NC offers, for example, more safety through redundant shutdowns (2 NC contacts) with simultaneous signaling (NO contact). The 3-pole blocks are also available with make-before-break and with 2 NO + 1 NC.

### *Contact reliability*

The contact blocks ensure an extremely high contact stability. This applies even when the devices are switching low voltages and currents.

### *Positive opening* ⊖

The NC contacts of the switch are forced open mechanically, positively driven and reliably by the plunger. This is referred to as "positive opening".

### *Optional LED displays*

LED displays are available for all enclosure sizes except for XL. The enclosures are supplied with an LED signaling indicator (1 x green + 1 x yellow). This is the first time that optical signaling equipment is also available for small standard enclosures according to EN 50047. The LEDs are implemented in 24 V DC and 230 V AC.

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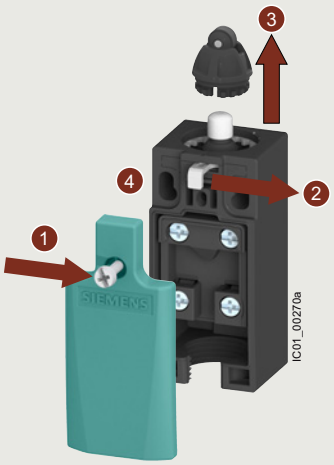
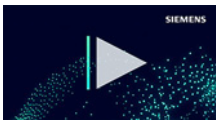
### *Mounting*

Easy plug-in method for fast replacement of the actuator heads




1. Open the cover
2. Actuate the locking lever
3. Replace the actuator head (rotatable in 16 x 22,5° increments)
4. Lock and close the cover

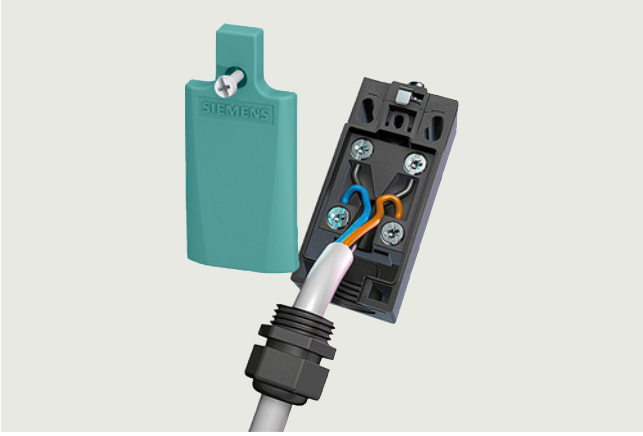
Replacement of the position switch actuator head in only four steps




Video: What makes the SIRIUS position switches so flexible?

### *Quick-connect technology*

For plastic enclosure with a width of 31 mm




Quick-connect technology for plastic enclosures

These position switches can be wired quickly and easily as an added customer benefit. The connecting cable is first connected to the terminals of the contact block and then guided through a slit into the cable gland opening. The time saved through this new connection method is approx. 20 to 25%.

A cable gland with seal must be used with the quick-connect method.

Video: How easy is it to install the 3SE5232 position switch?

### *Article number scheme*

| Product versions | | Article number |
|---|---|---|
| SIRIUS position and safety switches | | **3SE** □ □ □ □ – □ □ □ □ □ |
| Series | | **5** |
| Standard | EN 50041<br>EN 50047<br>With tumbler | **1**<br>**2**<br>**3** |
| Enclosure material and width | e.g. 1 = metal, narrow | □ |
| Connection | Cable entry<br>Device plug | **2**<br>**4/5** |
| LEDs | None<br>24 V DC<br>115 V AC<br>230 V AC | **0**<br>**1**<br>**2**<br>**3** |
| Version of contacts | e.g. C = snap-action 1 NO + 1 NC | □ |
| Version of operating mechanism | e.g. C02 = rounded plunger | □ □ □ |
| Example | | **3SE 5 1 1 2 – 0 C C 0 2** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## General data

### Benefits

The 3SE5 position switches differ from the previous series through the following new characteristics:

- The modular design of the product range allows a number of versions with a smaller number of bearing types for enclosures and operating mechanisms.
- All operating mechanisms can be rotated around the axis in increments of 22.5° (see Mounting, page 12/7).
- Rounded and roller plungers according to EN 50041 with 3 mm overtravel (total travel 9 mm) for greater tolerance when switching.
- All enclosure sizes – now also including the small enclosure 31 mm wide – are optionally available with an LED signaling indicator (see page 12/6).
- All enclosure variants have an integrated chlorinated rubber diaphragm for high functional safety in cold and aggressive environments.
- All contact blocks are replaceable (see page 12/48).
- The 3-pole contact blocks are available for all enclosure sizes (see Diverse contact types, page 12/6).
- Elements with 1 NO + 2 NC slow-action contacts with make-before-break and 2 NO + 1 NC
- The short-stroke contact block 1 NO + 1 NC improves the precision of the switching operation through a reduced actuation path.
- The contact block with 1 NO + 1 NC snap-action contacts with a contact distance of 2 x 2 mm is suitable for simultaneous shutdown and signaling, particularly in the elevator industry.
- XL metal enclosures for accommodating two 2- or 3-pole contact blocks
- Versions with plugs for safe and fast connection, e.g. to fail-safe field modules of the SIMATIC ET 200eco PN or SIMATIC ET 200AL
- The plastic enclosure with width 31 mm has simple and fast wiring equipment which makes it possible to save approx. 20 to 25% of the time when connecting (see Quick-connect technology, page 12/7).
- The ASIsafe electronics are integrated in the enclosure for the versions with AS-Interface connection (see page 12/93); an additional adapter is not required.

### Application

With the standard position switches, mechanical positions of moving machine parts are converted into electrical signals. Through their modular and uniform design and large number of variants, the devices can comply with practically all requirements in industry.

Devices are available with enclosure versions to suit the particular ambient conditions. Different control tasks can be performed with the contact blocks best suited for the particular purpose. And many different actuator variants are available to match the mechanical configuration of the moving machine parts. Dimensions, fixing points and characteristics are largely in accordance with the EN 50041 or EN 50047 standards.

The devices are suitable for use in any climate.

#### *Standards*

The switches comply with IEC 60947-5-1 (electromechanical control circuit devices).

The protective measure of "total insulation" by the plastic enclosure is ensured by the use of plastic screw glands.

#### *Safety position switches*

For controls according to IEC 60204-1 the devices can be used as a safety position switch. They comply with ISO 14119. A TÜV Certificate is available. To secure position switches against changes in their position, positively-driven techniques must be employed on installation.

#### *Safety circuits*

Standard IEC 60947-5-1 requires positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked according to the standard IEC 60947-5-1 with the symbol ➔.

SIL 1 according to IEC 62061/IEC 61508 or PL c according to ISO 13849-1 can be attained with the 3SE5 position switch with ➔ if the corresponding fail-safe evaluation units are selected and correctly installed (e.g. the 3SK safety relays or matching devices from the ASIsafe, SIMATIC or SINUMERIK product ranges).

If a second position switch with ➔ is used, SIL 3/PL e can be attained.

In addition to positive opening, the operating mechanisms (actuators) must also have a positively driven connection to the enclosure. The corresponding operating mechanisms are marked in the catalog with ➔.

#### *Evaluation of safety functions*

Safety Evaluation in the TIA Selection Tool

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.

#### *Contacts for every application*

- Snap-action contacts: NC and NO contacts switch simultaneously – regardless of the actuating speed ($v_{min}$ = 0.01 m/s) and contact erosion.
- Slow-action contacts: Difference in travel between "NC contact opens" and "NO contact closes"; the switching speed is the same as or proportional to the actuating speed ($v_{min}$ = 0.4 m/s).
- Slow-action contacts with make-before-break: e.g. suitable for adding a second function to a sequence control.

#### *Operating mechanisms for every application*

Plain, rounded and roller plungers

- Operation in direction of the plunger axis or in case of roller plunger with bar at right angles to the plunger axis.
- The roller plunger is recommended for lateral actuation and relatively long overtravel.

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Roller levers and angular roller levers

- For actuators made of finely ground steel in the form of cams, bars (approach angle 30°) or cam disks.

Spring rod

- Can be used for undefined actuations and changing approach conditions
- Approach from any direction is possible

Twist levers and rod levers

- For high approach velocities ($v$ = 1.5 m/s)
- Variety of approach options
- Insensitive to oil, grinding dust, dirt and coarse-grained material
- Adjustment of the lever in increments of 10°
- Can be adjusted with left or right switching

Fork lever

- Switchable in two directions
- Latching actuator
- For reciprocating movements

***Monitoring with safe evaluation units from the 3SK series***

| **Safe evaluation units** | | **Maximum achievable safety level according to type of switch** | | | | |
|---|---|---|---|---|---|---|
| | | Compact | Standard | Hinge | Separate actuator | Tumbler |
| 3SK | | 3SE54 ➔ | 3SE51/3SE52 ➔ | 3SE51/3SE52 ➔ | 3SE51/3SE52 ➔ | 3SE53 ➔ |
| **Use of only one position/safety switch** | | | | | | |
| Monitoring with 1 contact:<br>1 x NC contact | | **SIL 1/PL c** | | | | |
| Monitoring with 2 contacts:<br>2 x NC contact or 1 x NC contact + 1 x NO contact | | **SIL 1/PL c** | | **SIL 2/PL d** | | |
| **Use of a second position/safety switch** | | | | | | |
| Standard switch | 3SE51/3SE52/3SE54 | **SIL 3/PL e** | | | | |
| Safety switch/hinge switch | 3SE51/3SE52 | | | | | |
| Safety switch with separate actuator | 3SE51/3SE52 | | | | | |
| Safety switch with tumbler | 3SE53 | | | | | |

Note:

Taking account of certain fault exclusions (e.g. actuator breakage), use of just one hinge switch or a switch with separate actuator with or without tumbler up to SIL 2/PL d is possible as described in the table.

Since the machine manufacturer must provide proof of fault exclusion, the component manufacturer is unable to carry out a definitive assessment of the measures taken.

For more information, see https://support.industry.siemens.com/cs/ww/en/view/35443942.

The maximum achievable SIL or PL level always depends on other assumptions as well. Factors to be taken into account include the DC (declaration), the CCF, and the number of actuations.

For information on the safe evaluation units and an introduction to safety systems, see page 11/1 onwards.

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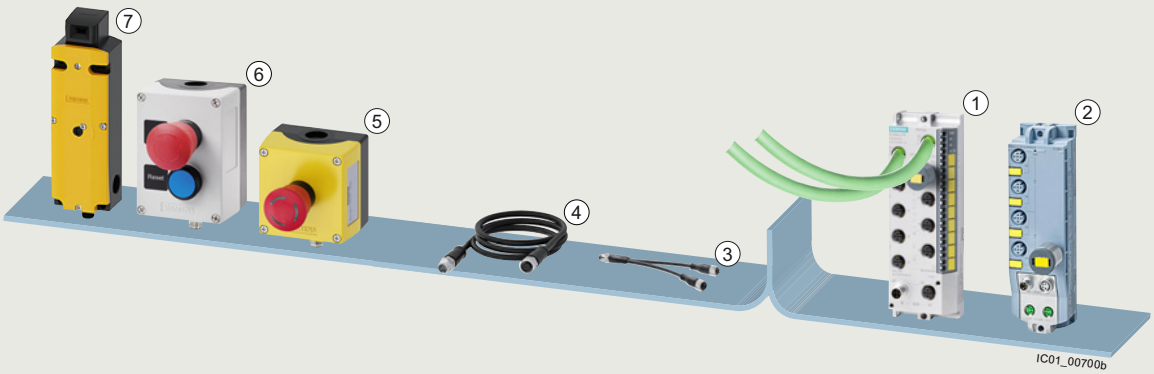
## General data

***Safety cabling in the field with IP67***

| More information |
|---|
| Fail-safe I/O device for<br>• SIMATIC ET 200eco PN, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10370455?tree=CatalogTree<br>• SIMATIC ET 200AL, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10414335?tree=CatalogTree<br>Configurator, see www.siemens.com/SIMATIC-ET200-safety-sensor-configurator |




1. SIMATIC ET 200eco PN field module, fail-safe, 6ES7146-6FF00-0BA0
2. SIMATIC ET 200AL field module, fail-safe, 6ES7146-5FF00-0BA0
3. Y-cable, 8-pole to 2 x 5-pole, 6ES7194-6KC00-0XA0
4. Connecting cable, 8-pole, 3SX5601-3SV18
5. SIRIUS ACT enclosure, EMERGENCY STOP, illuminated, with M12 plug, 8-pole, 3SU1801-0NV00-4SA2
6. SIRIUS ACT enclosure, EMERGENCY STOP and pushbutton, with M12 plug, 8-pole, 3SU1802-0NE00-4SB1
7. Safety switch with tumbler, with M12 plug, 8-pole, 3SE5324

Excerpt from the Safety field system composed of SIRIUS sensors and SIMATIC ET 200 with the M12 connection method

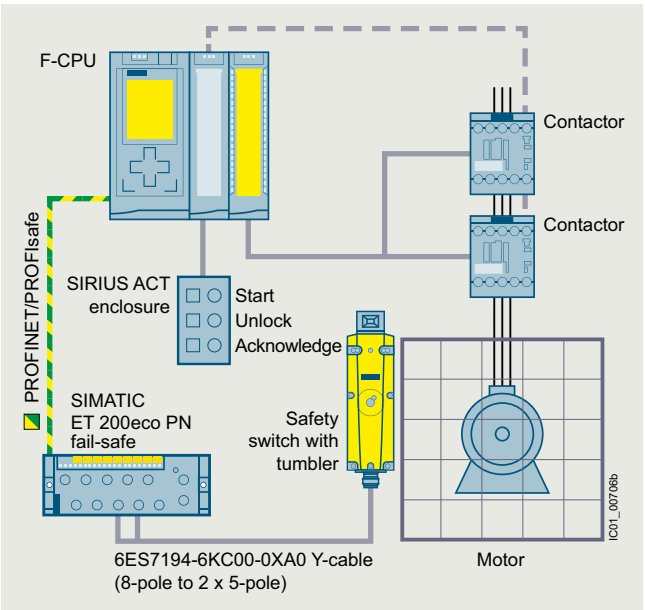
The new system comprising SIRIUS sensors and fail-safe SIMATIC ET 200 provides a safe M12 connection method for industry.

The SIRIUS sensors can be connected in the field via the fail-safe field modules of the SIMATIC ET 200eco PN and SIMATIC ET 200AL.

The signals are forwarded to the higher-level controller via PROFINET/PROFIsafe either by means of a direct connection of the SIMATIC ET 200eco PN or, in the case of SIMATIC ET 200AL, via an interface module.

For more information and examples, see page 12/88 onwards.

Application example




Protective door monitoring with 3SE53 safety switch with tumbler on the fail-safe field module of the SIMATIC ET 200eco PN with inverted Y-cable 6ES7194-6KC00-0XA0 (8-pole to 2 x 5-pole)

For a detailed description of this example of how safety switches with tumblers can achieve different SIL/PL levels, see https://support.industry.siemens.com/cs/ww/en/view/109778289.

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## Technical specifications

| Type | | 3SE51..[1], 3SE52..[1] | 3SE541. | 3SE542. |
|---|---|---|---|---|
| **General data** | | | | |
| **Standards** | | IEC 60947-5-1, ISO 14119 | | |
| **Rated insulation voltage $U_i$** | V | 400[2] | 400 | |
| **Pollution degree** according to IEC 60664-1 | | Class 3 | Class 3 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | 4 | |
| **Rated operational voltage $U_e$** | V | 400 AC; over 300 V AC same potential only[3] | 300 AC | |
| **Conventional thermal current $I_{th}$** | A | 10 | 10 | |
| **Rated operational current $I_e$** | | | | |
| • For alternating current 50/60 Hz | | $I_e$/AC-15 | $I_e$/AC-15 | |
| - At 24 V | A | 6 | 6 | |
| - At 120 V | A | 6 | 6 | |
| - At 240 V | A | 6 | 3 | |
| - At 400 V | A | 4 | -- | |
| • For direct current | | $I_e$/DC-13 | $I_e$/DC-13 | |
| - At 24 V | A | 3 | 3 | |
| - At 125 V | A | 0.55 | 0.55 | |
| - At 250 V | A | 0.27 | 0.27 | |
| - At 400 V | A | 0.12 | -- | |
| **Short-circuit protection**[4] | | | | |
| • With DIAZED fuse links, operational class gG | A | 6 | 10 | |
| • With miniature circuit breaker, C characteristic ($I_{K< 400\ A}$) | A | 1 | 3 | |
| **Mechanical endurance** | | | | |
| • Basic switch | | 15 x $10^6$ operating cycles | 10 x $10^6$ operating cycles | 10 x $10^6$ operating cycles |
| • With spring rod, 3SE5...-..R.. | | 10 x $10^6$ operating cycles | -- | -- |
| • With fork lever, 3SE51..-..T.. | | 1 x $10^6$ operating cycles | -- | -- |
| **Electrical endurance** | | | | |
| • With 3RH21 contactors size S00 and 3RT contactors sizes S00, S0 | | 10 x $10^6$ operating cycles | 500 000 operating cycles | 500 000 operating cycles |
| • For utilization category AC-15 when switching off $I_e$/AC-15 at 240 V | | 100 000 operating cycles | 100 000 operating cycles | 100 000 operating cycles |
| • With utilization category DC-12/DC-13 | | For direct current depending on the loading of the switch | | |
| **Frequency of operation** With contactors 3RH21 size S00 and 3RT contactors sizes S00, S0 | | 6 000 operating cycles/h | 1 800 operating cycles/h | |
| **Switching accuracy** | | | | |
| • For repeated switching, measured at the plunger of the contact block | mm | 0.05 | 0.05 | |
| • With twist actuators | | 1° | 1° | |
| **Rated data according to cULus and CSA** | | | | |
| • Rated voltage | V | 300 | 300 | |
| • Uninterrupted current | A | 6 | 10 | |
| • Switching capacity | | Heavy duty, A 300/B 300/Q 300 | A 300/Q 300 | |

1) Special versions, see the respective data sheet.
2) For slow-action contacts 1 NO + 2 NC with make-before-break ("M") and 2 NO + 1 NC ("P") the following applies: 250 V.
3) For slow-action contacts 1 NO + 2 NC with make-before-break ("M") and 2 NO + 1 NC ("P") the following applies: over 250 V AC same potential only.
4) Without any welds according to IEC 60947-5-1.

| Type | | 3SE523. | 3SE513. | 3SE524. | 3SE521. | 3SE511. | 3SE512., 3SE516. | 3SE54.. | 3SE525. |
|---|---|---|---|---|---|---|---|---|---|
| **Enclosure** | | | | | | | | | |
| **Enclosure** | | | | | | | | | |
| • Material | | Plastic P66 | | | Zinc die-casting | | | Zn/Al | -- |
| • Width | mm | 31 | 40 | 50 | 31 | 40 | 56 | 30/40 | 30 |
| **Degree of protection on the front** according to IEC 60529 | | IP65 | IP66/IP67; IP65/IP67 for actuator heads with spring rod and rod actuators | | | | | IP67 | IP20[1], IP10 |
| **Ambient temperature** | | | | | | | | | |
| • During operation | °C | -25 ... +85; -40 ... +85 for 3SE51..-1AJ0 and 3SE52..-1AJ0, -1AY0 | | | | | | -25 ... +85 | |
| • In operation, switch with LEDs | °C | -25 ... +60 | | | | | | -- | |
| • Storage, transport | °C | -40 ... +90 | | | | | | -40 ... +90 | |
| **Mounting position** | | Any | | | | | | | |
| **Connection** | | | | | | | | | |
| **Cable entry** | | 1 x (M20 x 1.5) | | 2 x (M20 x 1.5) | 1 x (M20 x 1.5) | | 3 x (M20 x 1.5) | -- | -- |
| **Conductor cross-sections** | | | | | | | | | |
| • Solid | $mm^2$ | 1 x (0.5 ... 1.5), 2 x (0.5 ... 0.75) | | | | | | | |
| • Finely stranded with end sleeve | $mm^2$ | 1 x (0.5 ... 1.5), 2 x (0.5 ... 0.75) | | | | | | | |
| • AWG cables, solid or stranded | AWG | 1 x (AWG 20 ... 16), 2 x (AWG 20 ... 18) | | | | | | | |
| **Tightening torque**, contact block | Nm | 0.8 ... 1.0 | | | | | | | |
| **Protective conductor connection** Inside enclosure | | -- | | | M3.5 | | | -- | -- |

1) With the conductor connected and the clamping screw tightened.

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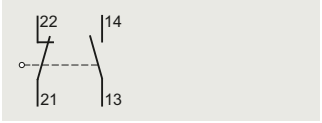
## General data

### *Circuit diagrams*

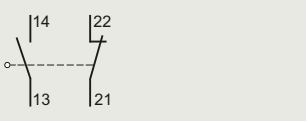
Enclosure widths 31, 40, 50 and 56 mm

**Slow-action contacts**
**1 NO + 1 NC**
**3SE5...-.B..., -.R...**

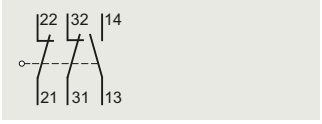



**Slow-action contacts**
**2 NO + 1 NC**
**3SE5...-.P...**

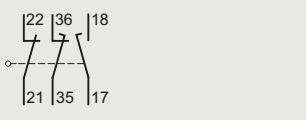
**Snap-action contacts**
**1 NO + 1 NC**
**3SE5...-.C..., -.F..., -.G..., -.H..., -.N...**



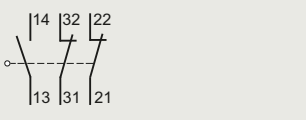

**Slow-action contacts**
**1 NO + 2 NC**
**3SE5...-.K..., -.Q...**




**Slow-action contacts**
**1 NO + 2 NC with**
**make-before-break, 3SE5...-.M...**

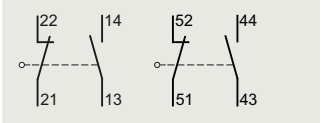



**Snap-action contacts**
**1 NO + 2 NC**
**3SE5...-.L...**

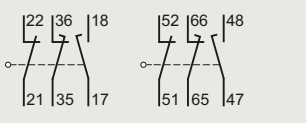



XL enclosures, width 56 mm

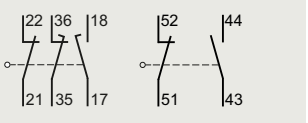
**Slow-action contacts**
**2 x (1 NO + 1 NC)**
**3SE5162-0B...**



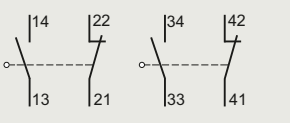

**Slow-action contacts**
**2 x (1 NO + 2 NC) with**
**make-before-break, 3SE5162-0D...**




**Slow-action contacts**
**1 NO + 2 NC with make-before-break,**
**1 NO + 1 NC**
**3SE5162-0E...**

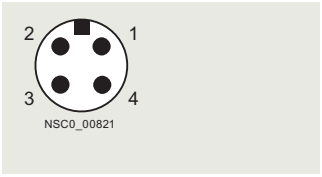



**Snap-action contacts**
**2 x (1 NO + 1 NC)**
**3SE5162-0C...**

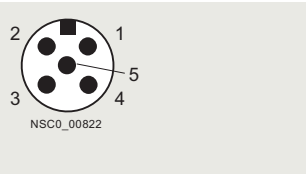



### *3SE5 pin assignment*

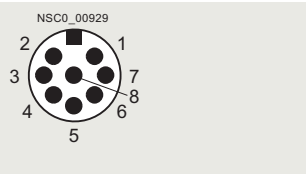
**M12 device plugs, 4-pole**
**3SY3127**



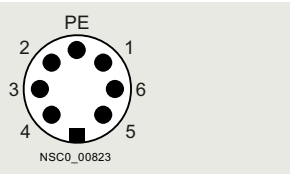

**M12 device plugs, 5-pole**
**3SY3128, 3SX5100-1SS51,**
**PE on pin 3, 3SX5100-1SS05**
**without PE**




**M12 device plugs, 8-pole**
**3SX5100-1SS08**




**Device plugs, 6-pole + PE**
**3SY3131**




| Type | Device plugs | Contacts | LEDs | Connections | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Type | Version | Version | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | PE |
| **M12 device plugs, 4-, 5- or 8-pole** | | | | | | | | | | | | |
| **3SE5..4-0....-1AC4, 3SE5..4-0....-1AJ1**[1] | 3SY3127 | 1 NO + 1 NC | -- | 21 | 22 | 13 | 14 | -- | -- | -- | -- | -- |
| **3SE5..4-0....-1AL0, 3SE5..4-0....-1AJ2**[1] | 3SY3128 | 1 NO + 1 NC | -- | 21 | 22 | 13 | 14 | PE | -- | -- | -- | -- |
| **3SE5..4-0....-1AE0** | 3SY3127 | 2 NC | -- | 21 | 22 | 31 | 32 | -- | -- | -- | -- | -- |
| **3SE5..4-0....-1AE1, 3SE5..4-0....-1AJ4**[1] | 3SY3128 | 2 NC | -- | 21 | 22 | 31 | 32 | PE | -- | -- | -- | -- |
| **3SE5..4-0....-1AE2** | 3SX5100-1SS51 | 2 NC | -- | 21 | 31 | -- | 22 | 32 | -- | -- | -- | -- |
| **3SE5..4-0....-1AE3** | 3SX5100-1SS51 | 2 NC | -- | 21 | 31 | PE | 22 | 32 | -- | -- | -- | -- |
| **3SE5..4-1B...-1AF3** | 3SX5100-1SS05 | 1 NO + 1 NC slow-action | 2 LEDs | 21 | 22 | 14/ LED gn | 13/ LED ye | Ground LED | -- | -- | -- | -- |
| **3SE5..4-1C...-1AF3** | 3SX5100-1SS05 | 1 NO + 1 NC snap-action | 2 LEDs | 21 | 22 | 13/ LED gn | 14/ LED ye | Ground LED | -- | -- | -- | -- |
| **3SE5..4-1C...-1AF5** | 3SX5100-1SS05 | 1 NO + 1 NC snap-action | 2 LEDs | 21 21/13 jumper | 22 | 13/ Ground LED | 14/ LED ye | PE | -- | -- | -- | -- |
| **3SE5..4-1L...-1AD4** | -- | 1 NO + 2 NC snap-action | 2 LEDs | 21 | 22 | 13/ LED gn | 14/ LED ye | 31 | 32 | Ground LED | PE | -- |
| **Device plugs, 6-pole + PE** | | | | | | | | | | | | |
| **3SE5..5-0....-1AD0** | 3SY3131 | 1 NO + 1 NC | -- | 21 | 22 | 13 | 14 | -- | -- | -- | -- | ✓ |
| **3SE5..5-0....-1AD1** | 3SY3131 | 1 NO + 2 NC | -- | 21 | 22 | 13 | 14 | 31 | 32 | -- | -- | ✓ |

Legend:
gn = green, ye = yellow
✓ Connected
-- Not available

[1] Version for ambient temperatures down to -40 °C.

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## Options

On the following pages you will find selection tables for complete units as well as components of the modular system.

☐ Complete units

⧄ Modular system

The differences between the units are indicated in the selection and ordering data by the symbols shown on orange backgrounds.

Using the modular system you can assemble switch variants which are not available as complete units. Each complete unit can also be supplied as a module.

A basic switch for the modular system comprises an enclosure with a contact block and a cover. Among the basic switches the following versions, for example, can be selected:

- Basic enclosure with rounded plunger
- Version with increased corrosion protection
- Version with M12 device plug and/or with 2 LEDs
- Version with M12 device plug or 6-pole + PE

### *Support functions*

The 3SE5/3SF1 position and safety switches can also be ordered using an online configurator.

This also enables a complete documentation to be prepared:

- Product data sheets
- Dimensional drawings
- Operating travel diagrams
- CAD data in 2D and 3D model images
- Ordering data
- Product photos

For online configurator, see www.siemens.com/sirius/configurators.

### *Complete units*

Ordering example

Required:
- Position switch according to EN 50047 in a plastic enclosure
- Contact block with slow-action contacts 1 NO + 1 NC
- Angular roller lever, metal lever and plastic roller

To be ordered:

| Version | Complete units ☐ |
|---|---|
| | Article No. |
| **Complete units · Enclosure width 31 mm** | |
| ***Angular roller levers*** | |
| **With metal lever and plastic roller 13 mm** | |
| • Slow-action contacts 1 NO + 1 NC | **3SE5232-0BF10** |

### *Modular system*

Ordering example 1

Required:
- Position switch according to EN 50047 in a plastic enclosure
- Contact block with slow-action contacts 1 NO + 1 NC
- Angular roller lever, metal lever and plastic roller

To be ordered separately:

| Version | Modular system ⧄ |
|---|---|
| | Article No. |
| **Basic switches · Enclosure width 31 mm** | |
| ***Rounded plungers*** | |
| • Slow-action contacts 1 NO + 1 NC | **3SE5232-0BC05** |
| | + |
| **Operating mechanisms** | |
| **Angular roller levers** | |
| • Metal levers Plastic rollers | **3SE5000-0AF10** |

Ordering example 2

Required:
- Position switch according to EN 50047 in a plastic enclosure
- Contact block with slow-action contacts 1 NO + 1 NC
- Twist levers, high-grade steel lever and plastic roller

To be ordered separately:

| Version | Modular system ⧄ |
|---|---|
| | Article No. |
| **Basic switches · Enclosure width 31 mm** | |
| ***Rounded plungers*** | |
| • Slow-action contacts 1 NO + 1 NC | **3SE5232-0BC05** |
| | + |
| **Twist actuators** | |
| **Twist actuators** | **3SE5000-0AK00** |
| **Twist levers** | |
| • High-grade steel levers plastic rollers | **3SE5000-0AA31** |

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## Enclosure width 31 mm according to EN 50047

### Selection and ordering data

***Complete units for installation in control cabinets***

2 contacts · Degree of protection IP40 · Cable entry by means of a locking plug with ∅ 6 mm

| | Version | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 31 mm according to EN 50047** | | | | | | | | | |
| 3SE5232-0HC05-1AB1 | ***Control cabinet type, rounded plungers, type B, according to EN 50047***<br>**With flat cover**<br>• Snap-action contacts, integrated[2] | 1 NO + 1 NC | -- | ➔ | **3SE5232-0HC05-1AB1** | | 1 | 1 unit | 41K |
| 3SE5232-0HC05-1AB2 | With mounting plate and screws for attachment profile<br>• Snap-action contacts, integrated[2] | 1 NO + 1 NC | -- | ➔ | **3SE5232-0HC05-1AB2** | | 1 | 1 unit | 41K |
| 3SE5232-0HC05-1AB3 | **With standard cover**<br>• Snap-action contacts, integrated[2] | 1 NO + 1 NC | -- | ➔ | **3SE5232-0HC05-1AB3** | | 1 | 1 unit | 41K |
| 3SE5232-0HC05-1AB4 | With mounting plate and screws for attachment profile<br>• Snap-action contacts, integrated[2] | 1 NO + 1 NC | -- | ➔ | **3SE5232-0HC05-1AB4** | | 1 | 1 unit | 41K |
| **Accessories** | | | | | | | | | |
| 3SX5100-1A | **Mounting plate**<br>Suitable for 3SE523.and 3SE521. position switches with a width of 31 mm | -- | -- | | **3SX5100-1A** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) The control cabinet types are not basic switches for the modular system.

2) Subsequent replacement of contact blocks is not possible.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***Complete units***

2 or 3 contacts · Degree of protection IP65 · Cable entry 1 x (M20 x 1.5)[1)]

| Version | Contacts | LEDs | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[2)] · Enclosure width 31 mm** | | | | | | | | |
| ***Rounded plungers, type B, according to EN 50047*** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0BC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0KC05** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5232-0PC05** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0MC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0CC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LC05** | | 1 | 1 unit | 41K |
| - Integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0HC05** | | 1 | 1 unit | 41K |
| - Short stroke, integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0FC05** | | 1 | 1 unit | 41K |
| - Contact distance 2 x 2 mm | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0GC05** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ⊖ | **3SE5232-1KC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊖ | **3SE5232-3KC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ⊖ | **3SE5232-1LC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊖ | **3SE5232-3LC05** | | 1 | 1 unit | 41K |
| With increased corrosion protection[4)] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0BC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0KC05-1CA0** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5232-0PC05-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0MC05-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0CC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LC05-1CA0** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (250 V, 4 A)[5)] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5234-0BC05-1AC4** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ⊖ | **3SE5234-0KC05-1AE0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 2 NC | -- | ⊖ | **3SE5234-0LC05-1AE0** | | 1 | 1 unit | 41K |
| - Integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5234-0HC05-1AC4** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[5)] | | | | | | | | |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | 24 V DC | ⊖ | **3SE5234-1BC05-1AF3** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | 24 V DC | ⊖ | **3SE5234-1CC05-1AF3** | | 1 | 1 unit | 41K |
| With pin assignment as for SIMATIC ET 200[6)] | | | | | | | | |
| • Snap-action contacts | 2 NC | -- | ⊖ | **3SE5234-0LC05-1AE2** | | 1 | 1 unit | 41K |

3SE5232-0HC05

3SE5232-1KC05

3SE5232-0BC05-1CA0

3SE5234-1BC05-1AF3

3SE5234-0LC05-1AE2

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) A cable gland with seal must be used with the quick-connect method.

2) Popular versions.

3) Subsequent replacement of contact blocks is not possible.

4) Use corresponding high-grade steel lever.

5) For pin assignments, see page 12/12.

6) The 3SE5234-.....-1AE2 position switches, prewired with an M12 plug, 5-pole, have the same pin assignment as all fail-safe block I/O modules with a PROFINET connection in the SIMATIC ET 200eco PN and ET 200AL series with degree of protection IP65/IP67 for cabinet-free installation directly at the machine.
For more information, see page 12/88 onwards.

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## Enclosure width 31 mm according to EN 50047

2 or 3 contacts · Degree of protection IP65 · Cable entry 1 x (M20 x 1.5)[1)]

| Version | Contacts | LEDs | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[2)] · Enclosure width 31 mm** | | | | | | | | |
| ***Roller plungers, type C, according to EN 50047*** | | | | | | | | |
| **With plastic roller 10 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0BD03** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0KD03** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LD03** | | 1 | 1 unit | 41K |
| - Integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0HD03** | | 1 | 1 unit | 41K |
| - Short stroke, integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0FD03** | | 1 | 1 unit | 41K |
| - Actuator head rotated 90° | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LD03-1AH0** | | 1 | 1 unit | 41K |
| - With yellow cover | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LD03-1AG0** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (250 V, 4 A)[4)] | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5234-0HD03-1AC4** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[4)] | | | | | | | | |
| With pin assignment as for SIMATIC ET 200[5)] | | | | | | | | |
| • Snap-action contacts | 2 NC | -- | ⊖ | **3SE5234-0LD03-1AE2** | | 1 | 1 unit | 41K |
| ***Roller plungers with central fixing according to EN 50047*** | | | | | | | | |
| **With plastic roller 10 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0KD10** | | 1 | 1 unit | 41K |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0HD10** | | 1 | 1 unit | 41K |
| ***Roller levers, type E, according to EN 50047*** | | | | | | | | |
| **With metal lever and plastic roller 13 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0BE10** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0KE10** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LE10** | | 1 | 1 unit | 41K |
| - Integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0HE10** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (250 V, 4 A)[4)] | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5234-0HE10-1AC4** | | 1 | 1 unit | 41K |
| **With metal lever and high-grade steel roller 13 mm** | | | | | | | | |
| With M12 device plug, 5-pole (125 V, 4 A)[4)] | | | | | | | | |
| With pin assignment as for SIMATIC ET 200[5)] | | | | | | | | |
| • Snap-action contacts | 2 NC | -- | ⊖ | **3SE5234-0LE11-1AE2** | | 1 | 1 unit | 41K |
| **With high-grade steel lever and plastic roller 13 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LE12** | | 1 | 1 unit | 41K |
| With increased corrosion protection[6)] | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0CE12-1CA0** | | 1 | 1 unit | 41K |
| ***Angular roller levers, according to EN 50047*** | | | | | | | | |
| **With metal lever and plastic roller 13 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0BF10** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0KF10** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LF10** | | 1 | 1 unit | 41K |
| - Integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0HF10** | | 1 | 1 unit | 41K |

3SE5232-0BD03

3SE5232-0LD03-1AG0

3SE5232-0HD10

3SE5232-0HE10

3SE5232-0BF10

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) A cable gland with seal must be used with the quick-connect method.

2) Popular versions.

3) Subsequent replacement of contact blocks is not possible.

4) For pin assignments, see page 12/12.

5) The 3SE5234-.....-1AE2 position switches, prewired with an M12 plug, 5-pole, have the same pin assignment as all fail-safe block I/O modules with a PROFINET connection in the SIMATIC ET 200eco PN and ET 200AL series with degree of protection IP65/IP67 for cabinet-free installation directly at the machine.
For more information, see page 12/88 onwards.

6) Use corresponding high-grade steel lever.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Enclosure width 31 mm according to EN 50047

2 or 3 contacts · Degree of protection IP65 · Cable entry 1 x (M20 x 1.5)[1)]

| Version | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[2)] · Enclosure width 31 mm** | | | | | | | | |
| ***Spring rods, according to EN 50047*** | | | | | | | | |
| **Length 142.5 mm, with plastic plunger 50 mm** | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | | **3SE5232-0HR01** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (250 V, 4 A)[4)] | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | | **3SE5234-0HR01-1AC4** | | 1 | 1 unit | 41K |
| ***Twist levers, type A, according to EN 50047*** | | | | | | | | |
| **With metal lever 21 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5232-0BK21** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5232-0KK21** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊕ | **3SE5232-0LK21** | | 1 | 1 unit | 41K |
| - Integrated[3)] | 1 NO + 1 NC | -- | ⊕ | **3SE5232-0HK21** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (250 V, 4 A)[4)] | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | ⊕ | **3SE5234-0HK21-1AC4** | | 1 | 1 unit | 41K |
| **With metal lever 35 mm and plastic roller 19 mm** | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | ⊕ | **3SE5232-0HK15** | | 1 | 1 unit | 41K |
| ***Twist levers, adjustable length, according to EN 50047*** | | | | | | | | |
| **With metal lever 100 mm, with grid holes and plastic roller 19 mm** | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | ⊕ | **3SE5232-0HK60** | | 1 | 1 unit | 41K |
| **With metal lever 100 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | | **3SE5232-0BK50** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | | **3SE5232-0LK50** | | 1 | 1 unit | 41K |
| - Integrated[3)] | 1 NO + 1 NC | -- | | **3SE5232-0HK50** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (250 V, 4 A)[4)] | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | | **3SE5234-0HK50-1AC4** | | 1 | 1 unit | 41K |
| ***Rod levers, according to EN 50047*** | | | | | | | | |
| **With aluminum rod 200 mm** | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | | **3SE5232-0HK80** | | 1 | 1 unit | 41K |
| **With plastic rod, length 200 mm** | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | | **3SE5232-0HK82** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (250 V, 4 A)[4)] | | | | | | | | |
| • Snap-action contacts, integrated[3)] | 1 NO + 1 NC | -- | | **3SE5234-0HK82-1AC4** | | 1 | 1 unit | 41K |

3SE5232-0HR01

3SE5232-0BK21

3SE5232-0HK60

3SE5232-0BK50

3SE5232-0HK80

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) A cable gland with seal must be used with the quick-connect method.
2) Popular versions.
3) Subsequent replacement of contact blocks is not possible.
4) For pin assignments, see page 12/12.

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/18.

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## Enclosure width 31 mm according to EN 50047

***Modular system***

2 or 3 contacts · Degree of protection IP65 · Cable entry 1 x (M20 x 1.5)[1)]

| Version | Contacts | LEDs | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Basic switches[2)] · Enclosure width 31 mm** | | | | | | | | |
| ***Rounded plungers, type B, according to EN 50047*** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0BC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0KC05** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5232-0PC05** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0MC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0CC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LC05** | | 1 | 1 unit | 41K |
| - Integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0HC05** | | 1 | 1 unit | 41K |
| - Short stroke, integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0FC05** | | 1 | 1 unit | 41K |
| - Contact distance 2 x 2 mm | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0GC05** | | 1 | 1 unit | 41K |
| With increased corrosion protection[4)] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0BC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0KC05-1CA0** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5232-0PC05-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0MC05-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0CC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0LC05-1CA0** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ⊖ | **3SE5232-1KC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊖ | **3SE5232-3KC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ⊖ | **3SE5232-1LC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊖ | **3SE5232-3LC05** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (250 V, 4 A)[5)] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5234-0BC05-1AC4** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ⊖ | **3SE5234-0KC05-1AE0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 2 NC | -- | ⊖ | **3SE5234-0LC05-1AE0** | | 1 | 1 unit | 41K |
| - Integrated[3)] | 1 NO + 1 NC | -- | ⊖ | **3SE5234-0HC05-1AC4** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[5)] | | | | | | | | |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | 24 V DC | ⊖ | **3SE5234-1BC05-1AF3** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | 24 V DC | ⊖ | **3SE5234-1CC05-1AF3** | | 1 | 1 unit | 41K |
| With pin assignment as for SIMATIC ET 200[6)] | | | | | | | | |
| • Snap-action contacts | 2 NC | -- | ⊖ | **3SE5234-0LC05-1AE2** | | 1 | 1 unit | 41K |

3SE5232-0BC05

3SE5232-0BC05-1CA0

3SE5232-1KC05

3SE5234-0HC05-1AC4

3SE5234-1BC05-1AF3

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) A cable gland with seal must be used with the quick-connect method.

2) For enclosures with widths of 31 mm, the basic switch is a complete unit with rounded plungers.

3) Subsequent replacement of contact blocks is not possible.

4) Use corresponding high-grade steel lever.

5) For pin assignments, see page 12/12.

6) The 3SE5234-.....-1AE2 position switches, prewired with an M12 plug, 5-pole, have the same pin assignment as all fail-safe block I/O modules with a PROFINET connection in the SIMATIC ET 200eco PN and ET 200AL series with degree of protection IP65/IP67 for cabinet-free installation directly at the machine.
For more information, see page 12/88 onwards.

Note:

For the selection aid, see page 12/13.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Enclosure width 31 mm according to EN 50047**

| Version | Diameter | | Modular system ◇ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | mm | | | | | | |
| **Operating mechanisms** | | | | | | | |
| 3SE5000-0AB01 | | | | | | | |
| **Plain plungers** | | | | | | | |
| • High-grade steel plungers | 8.5 | ➔ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| 3SE5000-0AD03 3SE5000-0AD10 | | | | | | | |
| **Roller plungers, type C, according to EN 50047** | | | | | | | |
| • Plastic roller | 10 | ➔ | **3SE5000-0AD03** | | 1 | 1 unit | 41K |
| • High-grade steel roller | 10 | ➔ | **3SE5000-0AD04** | | 1 | 1 unit | 41K |
| **Roller plungers with central fixing** | | | | | | | |
| • Plastic roller | 10 | ➔ | **3SE5000-0AD10** | | 1 | 1 unit | 41K |
| • High-grade steel roller | 10 | ➔ | **3SE5000-0AD11** | | 1 | 1 unit | 41K |
| 3SE5000-0AE10 3SE5000-0AF10 | | | | | | | |
| **Roller levers, type E, according to EN 50047** | | | | | | | |
| • Metal lever Plastic roller | 13 | ➔ | **3SE5000-0AE10** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ➔ | **3SE5000-0AE11** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 13 | ➔ | **3SE5000-0AE12** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ➔ | **3SE5000-0AE13** | | 1 | 1 unit | 41K |
| **Angular roller levers** | | | | | | | |
| • Metal lever Plastic roller | 13 | ➔ | **3SE5000-0AF10** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ➔ | **3SE5000-0AF11** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 13 | ➔ | **3SE5000-0AF12** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ➔ | **3SE5000-0AF13** | | 1 | 1 unit | 41K |
| 3SE5000-0AR01 3SE5000-0AR03 | | | | | | | |
| **Spring rods** (for switches with snap-action contacts only) | | | | | | | |
| • Plunger made of plastic, spring of high-grade steel: | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | **3SE5000-0AR01** | | 1 | 1 unit | 41K |
| - Length 76 mm (spring 23.5 mm, plunger 10 mm) | | | **3SE5000-0AR03** | | 1 | 1 unit | 41K |
| - Length 242.5 mm (spring 150 mm, plunger 50 mm) | | | **3SE5000-0AR04** | | 1 | 1 unit | 41K |
| • Plunger and spring made of high-grade steel: | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | **3SE5000-0AR02** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | |
| 3SE5000-0AK00 3SE5000-0AA21 | | | | | | | |
| **Twist actuators, for 31/50 mm, EN 50047** | | | | | | | |
| • For twist levers and rod actuators, switching right and/or left, adjustable | -- | ➔ | **3SE5000-0AK00** | | 1 | 1 unit | 41K |
| ***Levers*** | | | | | | | |
| **Twist levers 21 mm, straight, type A, according to EN 50047** | | | | | | | |
| 3SE5000-0AA60 3SE5000-0AA50 | | | | | | | |
| • Metal lever Plastic roller | 19 | ➔ | **3SE5000-0AA21** | | 1 | 1 unit | 41K |
| | 30 | ➔ | **3SE5000-0AA25** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ➔ | **3SE5000-0AA22** | | 1 | 1 unit | 41K |
| - With ball bearing | 19 | ➔ | **3SE5000-0AA23** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 19 | ➔ | **3SE5000-0AA31** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ➔ | **3SE5000-0AA32** | | 1 | 1 unit | 41K |
| **Twist levers 30 mm, straight**[1)] | | | | | | | |
| • Metal lever Plastic roller | 19 | ➔ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | 30 | ➔ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | |
| 3SE5000-0AA80 | | | | | | | |
| • Metal lever Plastic roller | 19 | ➔ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| | 50 | ➔ | **3SE5000-0AA67** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ➔ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| Rubber roller | 50 | ➔ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 19 | ➔ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ➔ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length** | | | | | | | |
| • Metal lever Plastic roller | 19 | | **3SE5000-0AA50** | | 1 | 1 unit | 41K |
| | 30 | | **3SE5000-0AA55** | | 1 | 1 unit | 41K |
| | 50 | | **3SE5000-0AA57** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | | **3SE5000-0AA51** | | 1 | 1 unit | 41K |
| Rubber roller | 50 | | **3SE5000-0AA58** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 19 | | **3SE5000-0AA52** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | | **3SE5000-0AA53** | | 1 | 1 unit | 41K |
| **Rod levers 200 mm** | | | | | | | |
| • Aluminum rod | 6 | | **3SE5000-0AA80** | | 1 | 1 unit | 41K |
| • Spring rod | 6 | | **3SE5000-0AA81** | | 1 | 1 unit | 41K |
| • Plastic rod | 6 | | **3SE5000-0AA82** | | 1 | 1 unit | 41K |

➔ Positively driven actuator, necessary in safety circuits.

1) Can be clinch mounted (rotated 180°, rear of lever).

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Enclosure width 40 mm according to EN 50041

### Selection and ordering data

***Complete units***

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

| Version | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 40 mm** | | | | | | | | |
| ***Plain plungers, according to EN 50041*** | | | | | | | | |
| **With high-grade steel plunger 8.5 mm** | | | | | | | | |
| 3SE5132-0BB01 | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0BB01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0KB01** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5132-0PB01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0CB01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0LB01** | | 1 | 1 unit | 41K |
| ***Rounded plungers, type B, according to EN 50041*** | | | | | | | | |
| **With plastic plunger 10 mm** | | | | | | | | |
| 3SE5132-0BC03 | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0BC03** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0KC03** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5132-0PC03** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0CC03** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0LC03** | | 1 | 1 unit | 41K |
| ***Roller plungers, type C, according to EN 50041*** | | | | | | | | |
| **With plastic roller 13 mm** | | | | | | | | |
| 3SE5132-0BD05 | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0BD05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0KD05** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5132-0PD05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0CD05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0LD05** | | 1 | 1 unit | 41K |
| ***Roller levers, according to EN 50041*** | | | | | | | | |
| **With metal lever and plastic roller 22 mm** | | | | | | | | |
| 3SE5132-0BE05 | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0BE05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0KE05** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5132-0PE05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0CE05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0LE05** | | 1 | 1 unit | 41K |
| ***Angular roller levers, according to EN 50041*** | | | | | | | | |
| **With metal lever and plastic roller 22 mm** | | | | | | | | |
| 3SE5132-0BF05 | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0BF05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0CF05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0LF05** | | 1 | 1 unit | 41K |
| ***Spring rods[2], according to EN 50041*** | | | | | | | | |
| **Length 142.5 mm, with plastic plunger 50 mm** | | | | | | | | |
| 3SE5132-0CR01 | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5132-0CR01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5132-0LR01** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Degree of protection IP65/IP67.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Enclosure width 40 mm according to EN 50041

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

| Version | Contacts | LEDs | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 40 mm** | | | | | | | | |
| ***Twist levers, type A, according to EN 50041*** | | | | | | | | |
| **With metal lever 27 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5132-0BJ01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5132-0KJ01** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊕ | **3SE5132-0PJ01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5132-0CJ01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5132-0LJ01** | | 1 | 1 unit | 41K |
| ***Twist levers, adjustable length, according to EN 50041*** | | | | | | | | |
| **With metal lever 100 mm, with grid holes and plastic roller 19 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5132-0CJ60** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5132-0LJ60** | | 1 | 1 unit | 41K |
| **With metal lever 100 mm and plastic roller 19 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5132-0CJ50** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | | **3SE5132-0LJ50** | | 1 | 1 unit | 41K |
| ***Rod levers[2], type D, according to EN 50041*** | | | | | | | | |
| **With aluminum rod 200 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5132-0CJ80** | | 1 | 1 unit | 41K |
| **With plastic rod 200 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5132-0CJ82** | | 1 | 1 unit | 41K |

3SE5132-0BJ01

3SE5132-0CJ60

3SE5132-0CJ50

3SE5132-0CJ80

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Degree of protection IP65/IP67.

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/22.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Enclosure width 40 mm according to EN 50041

***Modular system***

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

### Basic switches · Enclosure width 40 mm

***Rounded plungers, according to EN 50041***

| Version | Contacts | LEDs | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5132-0BA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5132-0KA00** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ➔ | **3SE5132-0PA00** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ➔ | **3SE5132-0MA00** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5132-0CA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5132-0LA00** | | 1 | 1 unit | 41K |
| - Gold-plated contacts | 1 NO + 1 NC | -- | ➔ | **3SE5132-0CA00-1AC1** | | 1 | 1 unit | 41K |
| With increased corrosion protection[1] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5132-0BA00-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5132-0KA00-1CA0** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ➔ | **3SE5132-0PA00-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ➔ | **3SE5132-0MA00-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5132-0CA00-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5132-0LA00-1CA0** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5132-1KA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ➔ | **3SE5132-3KA00** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5132-1LA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ➔ | **3SE5132-3LA00** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (250 V, 4 A)[2] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5134-0BA00-1AC4** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ➔ | **3SE5134-0KA00-1AE0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5134-0CA00-1AC4** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ➔ | **3SE5134-0LA00-1AE0** | | 1 | 1 unit | 41K |

3SE5132-0BA00

3SE5132-0BA00-1CA0

3SE5132-1KA00

3SE5134-0BA00-1AC4

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Use corresponding high-grade steel lever.

2) For pin assignments, see page 12/12.

Note:

For the selection aid, see page 12/13.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Enclosure width 40 mm according to EN 50041**

| Version | Diameter | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | mm | | | | | | |
| **Operating mechanisms** | | | | | | | |
| <br>3SE5000-0AB01 | | | | | | | |
| **Plain plungers** | | | | | | | |
| • High-grade steel plunger | 8.5 | ⊕ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| **Rounded plungers, type B, according to EN 50041** | | | | | | | |
| <br>3SE5000-0AC03 <br>3SE5000-0AD05 | | | | | | | |
| • Plastic plungers | 10 | ⊕ | **3SE5000-0AC03** | | 1 | 1 unit | 41K |
| **Roller plungers, type C, according to EN 50041** | | | | | | | |
| • Plastic plungers, Plastic roller | 13 | ⊕ | **3SE5000-0AD05** | | 1 | 1 unit | 41K |
| • Plastic plungers, High-grade steel roller | 13 | ⊕ | **3SE5000-0AD06** | | 1 | 1 unit | 41K |
| **Roller levers** | | | | | | | |
| <br>3SE5000-0AE05 <br>3SE5000-0AF05 | | | | | | | |
| • Metal lever, Plastic roller | 22 | ⊕ | **3SE5000-0AE05** | | 1 | 1 unit | 41K |
| **Angular roller levers** | | | | | | | |
| • Metal lever, Plastic roller | 22 | ⊕ | **3SE5000-0AF05** | | 1 | 1 unit | 41K |
| **Spring rods** | | | | | | | |
| <br>3SE5000-0AR01 | | | | | | | |
| (for switches with snap-action contacts only) | | | | | | | |
| • Plunger made of plastic, spring of high-grade steel: | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | **3SE5000-0AR01** | | 1 | 1 unit | 41K |
| - Length 76 mm (spring 23.5 mm, plunger 10 mm) | | | **3SE5000-0AR03** | | 1 | 1 unit | 41K |
| - Length 242.5 mm (spring 150 mm, plunger 50 mm) | | | **3SE5000-0AR04** | | 1 | 1 unit | 41K |
| • Plunger and spring made of high-grade steel: | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | **3SE5000-0AR02** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | |
| **Twist actuators, for 40 mm, according to EN 50041** | | | | | | | |
| <br>3SE5000-0AH00 | | | | | | | |
| • For twist levers and rod actuators, switching right and/or left, adjustable | -- | ⊕ | **3SE5000-0AH00** | | 1 | 1 unit | 41K |
| ***Levers*** | | | | | | | |
| **Twist levers 27 mm, offset, type A, according to EN 50041** | | | | | | | |
| <br>3SE5000-0AA01 | | | | | | | |
| • Metal lever, Plastic roller | 19 | ⊕ | **3SE5000-0AA01** | | 1 | 1 unit | 41K |
| | 30 | ⊕ | **3SE5000-0AA05** | | 1 | 1 unit | 41K |
| | 50 | ⊕ | **3SE5000-0AA07** | | 1 | 1 unit | 41K |
| 2 plastic rollers | 19 | ⊕ | **3SE5000-0AA04** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ⊕ | **3SE5000-0AA02** | | 1 | 1 unit | 41K |
| - With ball bearing | 19 | ⊕ | **3SE5000-0AA03** | | 1 | 1 unit | 41K |
| Rubber roller | 50 | ⊕ | **3SE5000-0AA08** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 19 | ⊕ | **3SE5000-0AA11** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ⊕ | **3SE5000-0AA12** | | 1 | 1 unit | 41K |
| **Twist levers 35 mm, offset, type A, according to EN 50041** | | | | | | | |
| • Metal lever, Plastic roller | 19 | ⊕ | **3SE5000-0AA15** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 19 | ⊕ | **3SE5000-0AA16** | | 1 | 1 unit | 41K |
| **Twist levers 30 mm, straight[1], type A, according to EN 50041** | | | | | | | |
| <br>3SE5000-0AA60 <br>3SE5000-0AA50 | | | | | | | |
| • Metal lever, Plastic roller | 19 | ⊕ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | 30 | ⊕ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | |
| • Metal lever, Plastic roller | 19 | ⊕ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ⊕ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| Rubber roller | 50 | ⊕ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 19 | ⊕ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ⊕ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length** | | | | | | | |
| • Metal lever, Plastic roller | 19 | | **3SE5000-0AA50** | | 1 | 1 unit | 41K |
| | 30 | | **3SE5000-0AA55** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | | **3SE5000-0AA51** | | 1 | 1 unit | 41K |
| Rubber roller | 50 | | **3SE5000-0AA58** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 19 | | **3SE5000-0AA52** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | | **3SE5000-0AA53** | | 1 | 1 unit | 41K |
| **Rod levers 200 mm, type D, according to EN 50041** | | | | | | | |
| <br>3SE5000-0AA80 | | | | | | | |
| • Aluminum rod | 6 | | **3SE5000-0AA80** | | 1 | 1 unit | 41K |
| • Spring rod | 6 | | **3SE5000-0AA81** | | 1 | 1 unit | 41K |
| • Plastic rod | 6 | | **3SE5000-0AA82** | | 1 | 1 unit | 41K |

⊕ Positively driven actuator, necessary in safety circuits.

1) Can be clinch mounted (rotated 180°, rear of lever).

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## Enclosure width 50 mm

### Selection and ordering data

***Complete units***

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 2 x (M20 x 1.5) · Operating points according to EN 50047

| Version | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 50 mm** | | | | | | | | |
| ***Rounded plungers*** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0BC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0KC05** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊕ | **3SE5242-0PC05** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0MC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0CC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0LC05** | | 1 | 1 unit | 41K |
| - Integrated[2] | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0HC05** | | 1 | 1 unit | 41K |
| - Short stroke, integrated[2] | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0FC05** | | 1 | 1 unit | 41K |
| - Contact distance 2 x 2 mm | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0GC05** | | 1 | 1 unit | 41K |
| With increased corrosion protection[3] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0BC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0KC05-1CA0** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊕ | **3SE5242-0PC05-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0MC05-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0LC05-1CA0** | | 1 | 1 unit | 41K |
| - Integrated[2] | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0HC05-1CA0** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ⊕ | **3SE5242-1KC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊕ | **3SE5242-3KC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ⊕ | **3SE5242-1LC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊕ | **3SE5242-3LC05** | | 1 | 1 unit | 41K |
| ***Roller plungers*** | | | | | | | | |
| **With plastic roller 10 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0BD03** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0LD03** | | 1 | 1 unit | 41K |
| - Integrated[2] | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0HD03** | | 1 | 1 unit | 41K |
| ***Roller levers*** | | | | | | | | |
| **With metal lever and plastic roller 13 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0BE10** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0LE10** | | 1 | 1 unit | 41K |
| - Integrated[2] | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0HE10** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole right (250 V, 4 A)[4] | | | | | | | | |
| • Snap-action contacts | 2 NC | -- | ⊕ | **3SE5244-0LE10-1AE0** | | 1 | 1 unit | 41K |
| ***Twist levers*** | | | | | | | | |
| **With metal lever 21 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0BK21** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0LK21** | | 1 | 1 unit | 41K |
| - Integrated[2] | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0HK21** | | 1 | 1 unit | 41K |
| ***Twist levers, adjustable length*** | | | | | | | | |
| **With metal lever 100 mm and plastic roller 19 mm** | | | | | | | | |
| • Snap-action contacts, integrated[2] | 1 NO + 1 NC | -- | | **3SE5242-0HK50** | | 1 | 1 unit | 41K |

3SE5242-0BC05

3SE5242-0BC05-1CA0

3SE5242-1KC05

3SE5242-0BD03

3SE5242-0BE10

3SE5242-0BK21

3SE5242-0HK50

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.
2) Subsequent replacement of contact blocks is not possible.
3) Use corresponding high-grade steel lever.
4) For pin assignments, see page 12/12.

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/25.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***Modular system***

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 2 x (M20 x 1.5) · Operating points according to EN 50047

| Version | Contacts | LEDs | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 50 mm** | | | | | | | | |
| ***Rounded plungers***[1] | | | | | | | | |
| 3SE5242-0BC05 | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5242-0BC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5242-0KC05** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5242-0PC05** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊖ | **3SE5242-0MC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5242-0CC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5242-0LC05** | | 1 | 1 unit | 41K |
| - Integrated[2] | 1 NO + 1 NC | -- | ⊖ | **3SE5242-0HC05** | | 1 | 1 unit | 41K |
| - Short stroke, integrated[2] | 1 NO + 1 NC | -- | ⊖ | **3SE5242-0FC05** | | 1 | 1 unit | 41K |
| - Contact distance 2 x 2 mm | 1 NO + 1 NC | -- | ⊖ | **3SE5242-0GC05** | | 1 | 1 unit | 41K |
| With increased corrosion protection[3] | | | | | | | | |
| 3SE5242-0BC05-1CA0 | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5242-0BC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5242-0KC05-1CA0** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5242-0PC05-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊖ | **3SE5242-0MC05-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5242-0LC05-1CA0** | | 1 | 1 unit | 41K |
| - Integrated[2] | 1 NO + 1 NC | -- | ⊖ | **3SE5242-0HC05-1CA0** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| 3SE5242-1KC05 | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ⊖ | **3SE5242-1KC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊖ | **3SE5242-3KC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ⊖ | **3SE5242-1LC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊖ | **3SE5242-3LC05** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) For enclosures with widths of 50 mm, the basic switch is a complete unit with rounded plungers.

2) Subsequent replacement of contact blocks is not possible.

3) Use corresponding high-grade steel lever.

Note:

For the selection aid, see page 12/13.

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## Enclosure width 50 mm

| Version | Diameter mm | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Operating mechanisms** | | | | | | | |
| 3SE5000-0AB01 | | | | | | | |
| **Plain plungers** | | | | | | | |
| • High-grade steel plungers | 8.5 | ⊕ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| 3SE5000-0AD03 3SE5000-0AD10 | | | | | | | |
| **Roller plungers, type C, according to EN 50047** | | | | | | | |
| • Plastic rollers | 10 | ⊕ | **3SE5000-0AD03** | | 1 | 1 unit | 41K |
| • High-grade steel rollers | 10 | ⊕ | **3SE5000-0AD04** | | 1 | 1 unit | 41K |
| **Roller plungers with central fixing** | | | | | | | |
| • Plastic rollers | 10 | ⊕ | **3SE5000-0AD10** | | 1 | 1 unit | 41K |
| • High-grade steel rollers | 10 | ⊕ | **3SE5000-0AD11** | | 1 | 1 unit | 41K |
| 3SE5000-0AE10 3SE5000-0AF10 | | | | | | | |
| **Roller levers, type E, according to EN 50047** | | | | | | | |
| • Metal lever Plastic roller | 13 | ⊕ | **3SE5000-0AE10** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ⊕ | **3SE5000-0AE11** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 13 | ⊕ | **3SE5000-0AE12** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ⊕ | **3SE5000-0AE13** | | 1 | 1 unit | 41K |
| **Angular roller levers** | | | | | | | |
| • Metal lever Plastic roller | 13 | ⊕ | **3SE5000-0AF10** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ⊕ | **3SE5000-0AF11** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 13 | ⊕ | **3SE5000-0AF12** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ⊕ | **3SE5000-0AF13** | | 1 | 1 unit | 41K |
| 3SE5000-0AR01 3SE5000-0AR03 | | | | | | | |
| **Spring rods** (for switches with snap-action contacts only) | | | | | | | |
| • Plunger made of plastic, spring of high-grade steel: | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | **3SE5000-0AR01** | | 1 | 1 unit | 41K |
| - Length 76 mm (spring 23.5 mm, plunger 10 mm) | | | **3SE5000-0AR03** | | 1 | 1 unit | 41K |
| - Length 242.5 mm (spring 150 mm, plunger 50 mm) | | | **3SE5000-0AR04** | | 1 | 1 unit | 41K |
| • Plunger and spring made of high-grade steel: | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | **3SE5000-0AR02** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | |
| 3SE5000-0AK00 3SE5000-0AA21 | | | | | | | |
| **Twist actuators, for 31/50 mm, according to EN 50047** | | | | | | | |
| • For twist levers and rod actuators, switching right and/or left, adjustable | -- | ⊕ | **3SE5000-0AK00** | | 1 | 1 unit | 41K |
| ***Levers*** | | | | | | | |
| **Twist levers 21 mm, straight, type A, according to EN 50047** | | | | | | | |
| • Metal lever Plastic roller | 19 | ⊕ | **3SE5000-0AA21** | | 1 | 1 unit | 41K |
| | 30 | ⊕ | **3SE5000-0AA25** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ⊕ | **3SE5000-0AA22** | | 1 | 1 unit | 41K |
| - With ball bearing | 19 | ⊕ | **3SE5000-0AA23** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 19 | ⊕ | **3SE5000-0AA31** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ⊕ | **3SE5000-0AA32** | | 1 | 1 unit | 41K |
| 3SE5000-0AA60 3SE5000-0AA50 | | | | | | | |
| **Twist levers 30 mm, straight**[1)] | | | | | | | |
| • Metal lever Plastic roller | 19 | ⊕ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | 30 | ⊕ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | |
| • Metal lever Plastic roller | 19 | ⊕ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| | 50 | ⊕ | **3SE5000-0AA67** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ⊕ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| Rubber roller | 50 | ⊕ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 19 | ⊕ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ⊕ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length** | | | | | | | |
| • Metal lever Plastic roller | 19 | | **3SE5000-0AA50** | | 1 | 1 unit | 41K |
| | 30 | | **3SE5000-0AA55** | | 1 | 1 unit | 41K |
| | 50 | | **3SE5000-0AA57** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | | **3SE5000-0AA51** | | 1 | 1 unit | 41K |
| Rubber roller | 50 | | **3SE5000-0AA58** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 19 | | **3SE5000-0AA52** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | | **3SE5000-0AA53** | | 1 | 1 unit | 41K |
| 3SE5000-0AA80 | | | | | | | |
| **Rod levers 200 mm** | | | | | | | |
| • Aluminum rod | 6 | | **3SE5000-0AA80** | | 1 | 1 unit | 41K |
| • Spring rod | 6 | | **3SE5000-0AA81** | | 1 | 1 unit | 41K |
| • Plastic rod | 6 | | **3SE5000-0AA82** | | 1 | 1 unit | 41K |

⊕ Positively driven actuator, necessary in safety circuits.

[1)] Can be clinch mounted (rotated 180°, rear of lever).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

### *Complete units*

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

| Version | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 31 mm** | | | | | | | | |
| ***Rounded plungers, type B, according to EN 50047*** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5212-0BC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0KC05** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊕ | **3SE5212-0PC05** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0MC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5212-0CC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0LC05** | | 1 | 1 unit | 41K |
| With increased corrosion protection[2] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5212-0BC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0KC05-1CA0** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊕ | **3SE5212-0PC05-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0MC05-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5212-0CC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0LC05-1CA0** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ⊕ | **3SE5212-1KC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊕ | **3SE5212-3KC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ⊕ | **3SE5212-1LC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ⊕ | **3SE5212-3LC05** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[3] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5214-0BC05-1AC5** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ⊕ | **3SE5214-0KC05-1AE1** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5214-0CC05-1AC5** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ⊕ | **3SE5214-0LC05-1AE1** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | 24 V DC | ⊕ | **3SE5214-1BC05-1AF3** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | 24 V DC | ⊕ | **3SE5214-1CC05-1AF3** | | 1 | 1 unit | 41K |
| ***Plain plungers, according to EN 50047*** | | | | | | | | |
| **With high-grade steel plunger 8.5 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5212-0BB01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0KB01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5212-0CB01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0LB01** | | 1 | 1 unit | 41K |
| ***Roller plungers, type C, according to EN 50047*** | | | | | | | | |
| **With plastic roller 10 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5212-0BD03** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0KD03** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5212-0CD03** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5212-0LD03** | | 1 | 1 unit | 41K |

3SE5212-0BC05

3SE5212-0BC05-1CA0

3SE5212-1KC05

3SE5212-0BB01

3SE5212-0BD03

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Use corresponding high-grade steel lever.

3) For pin assignments, see page 12/12.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Enclosure width 31 mm according to EN 50047

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

| Version | Contacts | LEDs | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 31 mm** | | | | | | | | |
| ***Roller plungers with central fixing, according to EN 50047*** | | | | | | | | |
| **With plastic roller 10 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5212-0KD10** | | 1 | 1 unit | 41K |
| ***Roller levers, type E, according to EN 50047*** | | | | | | | | |
| **With metal lever and plastic roller 13 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5212-0BE10** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5212-0KE10** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5212-0CE10** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5212-0LE10** | | 1 | 1 unit | 41K |
| ***Angular roller levers, according to EN 50047*** | | | | | | | | |
| **With metal lever and plastic roller 13 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5212-0BF10** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5212-0KF10** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5212-0CF10** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5212-0LF10** | | 1 | 1 unit | 41K |
| ***Twist levers, type A, according to EN 50047*** | | | | | | | | |
| **With metal lever 21 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5212-0BK21** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5212-0KK21** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5212-0CK21** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5212-0LK21** | | 1 | 1 unit | 41K |
| ***Twist levers, adjustable length, according to EN 50047*** | | | | | | | | |
| **With metal lever 100 mm, with grid holes and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5212-0KK60** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5212-0CK60** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5212-0LK60** | | 1 | 1 unit | 41K |
| **With metal lever 100 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | | **3SE5212-0BK50** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5212-0CK50** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | | **3SE5212-0LK50** | | 1 | 1 unit | 41K |

3SE5212-0KD10

3SE5212-0BE10

3SE5212-0BF10

3SE5212-0BK21

3SE5212-0CK60

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/29.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***Modular system***

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

| Version | Contacts | LEDs | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 31 mm** | | | | | | | | |
| ***Rounded plungers[1], type B, according to EN 50047*** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5212-0BC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5212-0KC05** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ➔ | **3SE5212-0PC05** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ➔ | **3SE5212-0MC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5212-0CC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5212-0LC05** | | 1 | 1 unit | 41K |
| With increased corrosion protection[2] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5212-0BC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5212-0KC05-1CA0** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ➔ | **3SE5212-0PC05-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ➔ | **3SE5212-0MC05-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5212-0CC05-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5212-0LC05-1CA0** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5212-1KC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ➔ | **3SE5212-3KC05** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5212-1LC05** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ➔ | **3SE5212-3LC05** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[3] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5214-0BC05-1AC5** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ➔ | **3SE5214-0KC05-1AE1** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5214-0CC05-1AC5** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ➔ | **3SE5214-0LC05-1AE1** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | 24 V DC | ➔ | **3SE5214-1BC05-1AF3** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | 24 V DC | ➔ | **3SE5214-1CC05-1AF3** | | 1 | 1 unit | 41K |

3SE5212-0BC05

3SE5212-0BC05-1CA0

3SE5212-1KC05

3SE5214-0BC05-1AC5

3SE5214-1BC05-1AF3

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) For enclosures with widths of 31 mm, the basic switch is a complete unit with rounded plungers.

2) Use corresponding high-grade steel lever.

3) For pin assignments, see page 12/12.

Note:

For the selection aid, see page 12/13.

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## Enclosure width 31 mm according to EN 50047

| Version | Diameter mm | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Operating mechanisms** | | | | | | | |
| 3SE5000-0AB01 3SE5000-0AD03 | | | | | | | |
| **Plain plungers** | | | | | | | |
| • High-grade steel plunger | 8.5 | ➔ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| **Roller plungers, type C, according to EN 50047** | | | | | | | |
| • Plastic rollers | 10 | ➔ | **3SE5000-0AD03** | | 1 | 1 unit | 41K |
| • High-grade steel rollers | 10 | ➔ | **3SE5000-0AD04** | | 1 | 1 unit | 41K |
| 3SE5000-0AE10 3SE5000-0AF10 | | | | | | | |
| **Roller plungers with central fixing** | | | | | | | |
| • Plastic rollers | 10 | ➔ | **3SE5000-0AD10** | | 1 | 1 unit | 41K |
| • High-grade steel rollers | 10 | ➔ | **3SE5000-0AD11** | | 1 | 1 unit | 41K |
| **Roller levers, type E, according to EN 50047** | | | | | | | |
| • Metal lever Plastic roller | 13 | ➔ | **3SE5000-0AE10** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ➔ | **3SE5000-0AE11** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 13 | ➔ | **3SE5000-0AE12** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ➔ | **3SE5000-0AE13** | | 1 | 1 unit | 41K |
| **Angular roller levers** | | | | | | | |
| • Metal lever Plastic roller | 13 | ➔ | **3SE5000-0AF10** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ➔ | **3SE5000-0AF11** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 13 | ➔ | **3SE5000-0AF12** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ➔ | **3SE5000-0AF13** | | 1 | 1 unit | 41K |
| 3SE5000-0AR01 3SE5000-0AR03 | | | | | | | |
| **Spring rods** (for switches with snap-action contacts only) | | | | | | | |
| • Plunger made of plastic, spring of high-grade steel: | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | **3SE5000-0AR01** | | 1 | 1 unit | 41K |
| - Length 76 mm (spring 23.5 mm, plunger 10 mm) | | | **3SE5000-0AR03** | | 1 | 1 unit | 41K |
| - Length 242.5 mm (spring 150 mm, plunger 50 mm) | | | **3SE5000-0AR04** | | 1 | 1 unit | 41K |
| • Plunger and spring made of high-grade steel: | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | **3SE5000-0AR02** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | |
| 3SE5000-0AK00 3SE5000-0AA21 | | | | | | | |
| **Twist actuators, for 31/50 mm, according to EN 50047** | | | | | | | |
| • For twist levers and rod actuators, switching right and/or left, adjustable | -- | ➔ | **3SE5000-0AK00** | | 1 | 1 unit | 41K |
| ***Levers*** | | | | | | | |
| **Twist levers 21 mm, straight, type A, according to EN 50047** | | | | | | | |
| • Metal lever Plastic roller | 19 | ➔ | **3SE5000-0AA21** | | 1 | 1 unit | 41K |
| | 30 | ➔ | **3SE5000-0AA25** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ➔ | **3SE5000-0AA22** | | 1 | 1 unit | 41K |
| - With ball bearing | 19 | ➔ | **3SE5000-0AA23** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 19 | ➔ | **3SE5000-0AA31** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ➔ | **3SE5000-0AA32** | | 1 | 1 unit | 41K |
| 3SE5000-0AA60 3SE5000-0AA50 | | | | | | | |
| **Twist levers 30 mm, straight**[1)] | | | | | | | |
| • Metal lever Plastic roller | 19 | ➔ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | 30 | ➔ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | |
| • Metal lever Plastic roller | 19 | ➔ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| | 50 | ➔ | **3SE5000-0AA67** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ➔ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| Rubber roller | 50 | ➔ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 19 | ➔ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ➔ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length** | | | | | | | |
| • Metal lever Plastic roller | 19 | | **3SE5000-0AA50** | | 1 | 1 unit | 41K |
| | 30 | | **3SE5000-0AA55** | | 1 | 1 unit | 41K |
| | 50 | | **3SE5000-0AA57** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | | **3SE5000-0AA51** | | 1 | 1 unit | 41K |
| Rubber roller | 50 | | **3SE5000-0AA58** | | 1 | 1 unit | 41K |
| • High-grade steel lever Plastic roller | 19 | | **3SE5000-0AA52** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | | **3SE5000-0AA53** | | 1 | 1 unit | 41K |
| **Rod levers** | | | | | | | |
| • Aluminum rod Length 200 mm | 6 | | **3SE5000-0AA80** | | 1 | 1 unit | 41K |
| • Spring rod Length 200 mm | 6 | | **3SE5000-0AA81** | | 1 | 1 unit | 41K |
| • Plastic rod Length 200 mm | 6 | | **3SE5000-0AA82** | | 1 | 1 unit | 41K |
| • Plastic rod Length 330 mm | 6 | | **3SE5000-0AA83** | | 1 | 1 unit | 41K |

3SE5000-0AA80

➔ Positively driven actuator, necessary in safety circuits.
1) Can be clinch mounted (rotated 180°, rear of lever).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

### *Complete units*

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

| Version | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 40 mm** | | | | | | | | |
| ***Plain plungers, according to EN 50041*** | | | | | | | | |
| **With high-grade steel plunger 8.5 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5112-0BB01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5112-0KB01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5112-0CB01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5112-0LB01** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[2] | | | | | | | | |
| With pin assignment as for SIMATIC ET 200[3] | | | | | | | | |
| • Snap-action contacts | 2 NC | -- | ⊖ | **3SE5114-0LB01-1AE3** | | 1 | 1 unit | 41K |
| ***Rounded plungers, type B, according to EN 50041*** | | | | | | | | |
| **With high-grade steel plunger 10 mm, with 3 mm overtravel** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5112-0BC02** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5112-0KC02** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5112-0CC02** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5112-0LC02** | | 1 | 1 unit | 41K |
| - Increased operation/restoring force[4] | 1 NO + 1 NC | -- | ⊖ | **3SE5112-0CC02-1AA7** | | 1 | 1 unit | 41K |
| With M12 device plug, 4-pole (125 V, 4 A)[2] | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5114-0CC02-1AC4** | | 1 | 1 unit | 41K |
| ***Roller plungers, type C, according to EN 50041*** | | | | | | | | |
| **With high-grade steel roller 13 mm, with 3 mm overtravel** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5112-0BD02** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5112-0KD02** | | 1 | 1 unit | 41K |
| - Increased operation/restoring force[4] | 2 NO + 1 NC | -- | ⊖ | **3SE5112-0PD02-1AA7** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5112-0CD02** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5112-0LD02** | | 1 | 1 unit | 41K |
| - Increased operation/restoring force[4] | 1 NO + 1 NC | -- | ⊖ | **3SE5112-0CD02-1AA7** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5112-0LD02-1AA7** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[2] | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5114-0CD02-1AC5** | | 1 | 1 unit | 41K |
| - Increased operation/restoring force[4] | 1 NO + 1 NC | -- | ⊖ | **3SE5114-0CD02-1AL0** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | 24 V DC | ⊖ | **3SE5114-1CD02-1AF3** | | 1 | 1 unit | 41K |
| | 1 NO + 1 NC | 24 V DC | ⊖ | **3SE5114-1CD02-1AF5** | | 1 | 1 unit | 41K |
| With pin assignment as for SIMATIC ET 200[3] | | | | | | | | |
| • Snap-action contacts | 2 NC | -- | ⊖ | **3SE5114-0LD02-1AE3** | | 1 | 1 unit | 41K |

3SE5112-0BB01

3SE5112-0BC02

3SE5112-0BD02

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) For pin assignments, see page 12/12.

3) The 3SE5114-.....-1AE3 position switches, prewired with an M12 plug, 5-pole, have the same pin assignment as all fail-safe block I/O modules with a PROFINET connection in the SIMATIC ET 200eco PN and ET 200AL series with degree of protection IP65/IP67 for cabinet-free installation directly at the machine.
For more information, see page 12/88 onwards.

4) Increased operation or restoring force 30 N; only available as complete unit, no modular design

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## Enclosure width 40 mm according to EN 50041

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

| Version | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 40 mm** | | | | | | | | |
| ***Roller levers, according to EN 50041*** | | | | | | | | |
| **With metal lever and plastic roller 22 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0BE01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5112-0KE01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0CE01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5112-0LE01** | | 1 | 1 unit | 41K |
| ***Angular roller levers, according to EN 50041*** | | | | | | | | |
| **With metal lever and plastic roller 22 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0BF01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0CF01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5112-0LF01** | | 1 | 1 unit | 41K |
| ***Spring rods[2], according to EN 50041*** | | | | | | | | |
| **Length 142.5 mm, with plastic plunger 50 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5112-0CR01** | | 1 | 1 unit | 41K |
| ***Twist levers, type A, according to EN 50041*** | | | | | | | | |
| **With metal lever 27 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0BH01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5112-0KH01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0CH01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5112-0LH01** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[3] | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5114-0CH01-1AC5** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | 24 V DC | ➔ | **3SE5114-1CH01-1AF3** | | 1 | 1 unit | 41K |
| With pin assignment as for SIMATIC ET 200[4] | | | | | | | | |
| • Snap-action contacts | 2 NC | -- | ➔ | **3SE5114-0LH01-1AE3** | | 1 | 1 unit | 41K |
| **With metal lever 27 mm and high-grade steel roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0BH02** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0CH02** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[3] | | | | | | | | |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | 24 V DC | ➔ | **3SE5114-1CH02-1AF3** | | 1 | 1 unit | 41K |
| **With metal lever 30 mm and plastic roller 19 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0CH24** | | 1 | 1 unit | 41K |

3SE5112-0BE01

3SE5112-0BF01

3SE5112-0CR01

3SE5112-0BH01

3SE5114-1CH02-1AF3

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Degree of protection IP65/IP67.

3) For pin assignments, see page 12/12.

4) The 3SE5114-.....-1AE3 position switches, prewired with an M12 plug, 5-pole, have the same pin assignment as all fail-safe block I/O modules with a PROFINET connection in the SIMATIC ET 200eco PN and ET 200AL series with degree of protection IP65/IP67 for cabinet-free installation directly at the machine.
For more information, see page 12/88 onwards.





*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

| Version | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 40 mm** | | | | | | | | |
| ***Twist levers, adjustable length, according to EN 50041*** | | | | | | | | |
| **With metal lever 100 mm, with grid holes and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5112-0BH60** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5112-0CH60** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5112-0LH60** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[2] | | | | | | | | |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | 24 V DC | ⊕ | **3SE5114-1CH60-1AF3** | | 1 | 1 unit | 41K |
| **With metal lever 100 mm, with grid hole and high-grade steel roller 19 mm** | | | | | | | | |
| With M12 device plug, 5-pole (125 V, 4 A)[2] | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5114-0CH61-1AC5** | | 1 | 1 unit | 41K |
| **With metal lever 100 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | | **3SE5112-0BH50** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5112-0CH50** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | | **3SE5112-0LH50** | | 1 | 1 unit | 41K |
| With M12 device plug, 8-pole (30 V, 2 A)[2] | | | | | | | | |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | | **3SE5114-1LH50-1AD4** | | 1 | 1 unit | 41K |
| **With metal lever 100 mm and high-grade steel roller 19 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5112-0CH51** | | 1 | 1 unit | 41K |
| ***Fork levers, latching, according to EN 50041*** | | | | | | | | |
| **With metal lever and 2 plastic rollers 19 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5112-0CT11** | | 1 | 1 unit | 41K |
| ***Rod levers[3], type D according to EN 50041*** | | | | | | | | |
| **With aluminum rod 200 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5112-0CH80** | | 1 | 1 unit | 41K |
| Nagara switch with M12 device plug, 5-pole (125 V, 4 A)[2][4] | | | | | | | | |
| • Snap-action contacts, short-stroke | 1 NO + 1 NC | -- | | **3SE5114-0NH82-1AM2** | | 1 | 1 unit | 41K |
| **With plastic rod, length 200 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5112-0CH82** | | 1 | 1 unit | 41K |

3SE5112-0BH60

3SE5112-0BH50

3SE5112-0CT11

3SE5112-0CH80

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) For pin assignments, see page 12/12.

3) Degree of protection IP65/IP67.

4) Start switch triggerable via one-hand operation (during operation).

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/34.

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## Enclosure width 40 mm according to EN 50041

***Modular system***

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

### Basic switches · Enclosure width 40 mm

***Rounded plungers, according to EN 50041***

| Version | Contacts | LEDs | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0BA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5112-0KA00** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ➔ | **3SE5112-0PA00** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ➔ | **3SE5112-0MA00** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0CA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5112-0LA00** | | 1 | 1 unit | 41K |
| - Gold-plated contacts | | | ➔ | **3SE5112-0CA00-1AC1** | | 1 | 1 unit | 41K |
| With increased corrosion protection[1] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0BA00-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5112-0KA00-1CA0** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ➔ | **3SE5112-0PA00-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ➔ | **3SE5112-0MA00-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5112-0CA00-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5112-0LA00-1CA0** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5112-1KA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ➔ | **3SE5112-3KA00** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5112-1LA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ➔ | **3SE5112-3LA00** | | 1 | 1 unit | 41K |
| With M12 device plug, 5-pole (125 V, 4 A)[2] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5114-0BA00-1AC5** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ➔ | **3SE5114-0KA00-1AE1** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5114-0CA00-1AC5** | | 1 | 1 unit | 41K |
| | 2 NC | -- | ➔ | **3SE5114-0LA00-1AE1** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | 24 V DC | ➔ | **3SE5114-1BA00-1AF3** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | 24 V DC | ➔ | **3SE5114-1CA00-1AF3** | | 1 | 1 unit | 41K |
| With pin assignment as for SIMATIC ET 200[3] | | | | | | | | |
| • Snap-action contacts | 1 NO + 2 NC | -- | ➔ | **3SE5114-0LA00-1AE3** | | 1 | 1 unit | 41K |
| With device plug, 6-pole + PE (250 V, 10 A)[2] | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | -- | ➔ | **3SE5115-0KA00-1AD1** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | -- | ➔ | **3SE5115-0LA00-1AD1** | | 1 | 1 unit | 41K |
| With quick-release device | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5115-0CA00-1AD0** | | 1 | 1 unit | 41K |
| With M12 device plug, 8-pole (30 V, 2 A)[2] | | | | | | | | |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5114-1LA00-1AD4** | | 1 | 1 unit | 41K |

3SE5112-0BA00

3SE5112-0BA00-1CA0

3SE5112-1KA00

3SE5114-0BA00-1AC5

3SE5115-0KA00-1AD1

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Use corresponding high-grade steel lever.

2) For pin assignments, see page 12/12.

3) The 3SE5114-.....-1AE3 position switches, prewired with an M12 plug, 5-pole, have the same pin assignment as all fail-safe block I/O modules with a PROFINET connection in the SIMATIC ET 200eco PN and ET 200AL series with degree of protection IP65/IP67 for cabinet-free installation directly at the machine.
For more information, see page 12/88 onwards.

Note:

For the selection aid, see page 12/13.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Enclosure width 40 mm according to EN 50041**

| Version | | Diameter mm | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Operating mechanisms** | | | | | | | | |
| **Plain plungers** | | | | | | | | |
| • High-grade steel plunger | | 8.5 | ➔ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| **Rounded plungers, type B, according to EN 50041** | | | | | | | | |
| • High-grade steel plunger, with 3 mm overtravel | | 10 | ➔ | **3SE5000-0AC02** | | 1 | 1 unit | 41K |
| **Roller plungers, type C, according to EN 50041** | | | | | | | | |
| • High-grade steel roller, with 3 mm overtravel | | 13 | ➔ | **3SE5000-0AD02** | | 1 | 1 unit | 41K |
| **Roller levers** | | | | | | | | |
| • Metal lever | Plastic roller | 22 | ➔ | **3SE5000-0AE01** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AE02** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 22 | ➔ | **3SE5000-0AE03** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AE04** | | 1 | 1 unit | 41K |
| **Angular roller levers** | | | | | | | | |
| • Metal lever | Plastic roller | 22 | ➔ | **3SE5000-0AF01** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AF02** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 22 | ➔ | **3SE5000-0AF03** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AF04** | | 1 | 1 unit | 41K |
| **Spring rods** (for switches with snap-action contacts only) | | | | | | | | |
| • Plunger made of plastic, spring of high-grade steel: | | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | | **3SE5000-0AR01** | | 1 | 1 unit | 41K |
| - Length 76 mm (spring 23.5 mm, plunger 10 mm) | | | | **3SE5000-0AR03** | | 1 | 1 unit | 41K |
| - Length 242.5 mm (spring 150 mm, plunger 50 mm) | | | | **3SE5000-0AR04** | | 1 | 1 unit | 41K |
| • Plunger and spring made of high-grade steel: | | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | | **3SE5000-0AR02** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | | |
| **Twist actuators, for 40/56/56 mm, XL, according to EN 50041** | | | | | | | | |
| • For twist levers and rod actuators, switching right and/or left, adjustable | | -- | ➔ | **3SE5000-0AH00** | | 1 | 1 unit | 41K |
| • For fork levers, latching | | -- | ➔ | **3SE5000-0AT10** | | 1 | 1 unit | 41K |
| ***Levers*** | | | | | | | | |
| **Twist levers 27 mm, offset, type A, according to EN 50041** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA01** | | 1 | 1 unit | 41K |
| | | 30 | ➔ | **3SE5000-0AA05** | | 1 | 1 unit | 41K |
| | | 50 | ➔ | **3SE5000-0AA07** | | 1 | 1 unit | 41K |
| | 2 plastic rollers | 19 | ➔ | **3SE5000-0AA04** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA02** | | 1 | 1 unit | 41K |
| | - With ball bearing | 19 | ➔ | **3SE5000-0AA03** | | 1 | 1 unit | 41K |
| | Rubber roller | 50 | ➔ | **3SE5000-0AA08** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA11** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA12** | | 1 | 1 unit | 41K |
| **Twist levers 35 mm, offset, type A, according to EN 50041** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA15** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA16** | | 1 | 1 unit | 41K |
| **Twist levers 30 mm, straight[1], type A, according to EN 50041** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | | 30 | ➔ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| | | 50 | ➔ | **3SE5000-0AA67** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| | Rubber roller | 50 | ➔ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | | **3SE5000-0AA50** | | 1 | 1 unit | 41K |
| | | 30 | | **3SE5000-0AA55** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | | **3SE5000-0AA51** | | 1 | 1 unit | 41K |
| | Rubber roller | 50 | | **3SE5000-0AA58** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | | **3SE5000-0AA52** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | | **3SE5000-0AA53** | | 1 | 1 unit | 41K |
| **Fork levers** (for switches with snap-action contacts only) | | | | | | | | |
| • 2 metal levers | 2 plastic rollers | 19 | ➔ | **3SE5000-0AT01** | | 1 | 1 unit | 41K |
| | 2 high-grade steel rollers | 19 | ➔ | **3SE5000-0AT02** | | 1 | 1 unit | 41K |
| • 2 high-grade steel levers | 2 plastic rollers | 19 | ➔ | **3SE5000-0AT03** | | 1 | 1 unit | 41K |
| **Rod levers 200 mm, type D, according to EN 50041** | | | | | | | | |
| • Aluminum rod | | 6 | | **3SE5000-0AA80** | | 1 | 1 unit | 41K |
| • Spring rod | | 6 | | **3SE5000-0AA81** | | 1 | 1 unit | 41K |
| • Plastic rod | | 6 | | **3SE5000-0AA82** | | 1 | 1 unit | 41K |

3SE5000-0AC02 3SE5000-0AD02

3SE5000-0AE01 3SE5000-0AF01

3SE5000-0AR01

3SE5000-0AH00 3SE5000-0AA01

3SE5000-0AA60 3SE5000-0AA50

3SE5000-0AT01

3SE5000-0AA80

Ⓐ Positively driven actuator, necessary in safety circuits.

[1] Can be clinch mounted (rotated 180°, rear of lever).

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Enclosure width 56 mm

### Selection and ordering data

***Complete units***

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 3 x (M20 x 1.5) · Operating points according to EN 50041

| Version | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 56 mm** | | | | | | | | |
| ***Plain plungers*** | | | | | | | | |
| **With high-grade steel plunger 8.5 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0BB01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0KB01** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5122-0PB01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0CB01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0LB01** | | 1 | 1 unit | 41K |
| ***Rounded plungers*** | | | | | | | | |
| **With high-grade steel plunger 10 mm, with 3 mm overtravel** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0BC02** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0KC02** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5122-0PC02** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0CC02** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0LC02** | | 1 | 1 unit | 41K |
| - Increased operation/restoring force[2] | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0CC02-1AA7** | | 1 | 1 unit | 41K |
| ***Roller plungers*** | | | | | | | | |
| **With high-grade steel roller 13 mm, with 3 mm overtravel** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0BD02** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0KD02** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0CD02** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0LD02** | | 1 | 1 unit | 41K |
| - Increased operation/restoring force[2] | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0CD02-1AA7** | | 1 | 1 unit | 41K |
| ***Roller levers*** | | | | | | | | |
| **With metal lever and plastic roller 22 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0BE01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0KE01** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5122-0PE01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0CE01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0LE01** | | 1 | 1 unit | 41K |
| **With metal lever and high-grade steel roller 22 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0CE02** | | 1 | 1 unit | 41K |
| ***Angular roller levers*** | | | | | | | | |
| **With metal lever and plastic roller 22 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0BF01** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊖ | **3SE5122-0PF01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5122-0CF01** | | 1 | 1 unit | 41K |

3SE5122-0BB01

3SE5122-0BC02

3SE5122-0BD02

3SE5122-0BE01

3SE5122-0BF01

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Increased operation or restoring force 30 N; only available as complete unit, no modular design.

12



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 3 x (M20 x 1.5) · Operating points according to EN 50041

| Version | Contacts | LEDs | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 56 mm** | | | | | | | | |
| ***Spring rods[2]*** | | | | | | | | |
| **Length 142.5 mm, with plastic plunger 50 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5122-0CR01** | | 1 | 1 unit | 41K |
| ***Twist levers*** | | | | | | | | |
| **With metal lever 27 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5122-0BH01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5122-0KH01** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ⊕ | **3SE5122-0PH01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5122-0CH01** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5122-0LH01** | | 1 | 1 unit | 41K |
| **With metal lever 27 mm and high-grade steel roller 19 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5122-0CH02** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5122-0LH02** | | 1 | 1 unit | 41K |
| ***Twist levers, adjustable length*** | | | | | | | | |
| **With metal lever 100 mm, with grid holes and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5122-0BH60** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5122-0CH60** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊕ | **3SE5122-0LH60** | | 1 | 1 unit | 41K |
| **With metal lever 100 mm and plastic roller 19 mm** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | | **3SE5122-0BH50** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5122-0CH50** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | | **3SE5122-0LH50** | | 1 | 1 unit | 41K |
| ***Fork levers, latching*** | | | | | | | | |
| **With metal lever and 2 plastic rollers 19 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5122-0CT11** | | 1 | 1 unit | 41K |
| ***Rod levers[2]*** | | | | | | | | |
| **With aluminum rod 200 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5122-0CH80** | | 1 | 1 unit | 41K |
| **With plastic rod 200 mm** | | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | -- | | **3SE5122-0CH82** | | 1 | 1 unit | 41K |

3SE5122-0CR01

3SE5122-0BH01

3SE5122-0BH60

3SE5122-0CT11

3SE5122-0CH80

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Degree of protection IP65/IP67.

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/38.

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## Enclosure width 56 mm

### *Modular system*

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 3 x (M20 x 1.5) · Operating points according to EN 50041

| Version | Contacts | LEDs | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 56 mm** | | | | | | | | |
| ***Rounded plungers*** | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5122-0BA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5122-0KA00** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ➔ | **3SE5122-0PA00** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ➔ | **3SE5122-0MA00** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5122-0CA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5122-0LA00** | | 1 | 1 unit | 41K |
| With increased corrosion protection[1] | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5122-0BA00-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5122-0KA00-1CA0** | | 1 | 1 unit | 41K |
| | 2 NO + 1 NC | -- | ➔ | **3SE5122-0PA00-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 1 NO + 2 NC | -- | ➔ | **3SE5122-0MA00-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5122-0CA00-1CA0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5122-0LA00-1CA0** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5122-1KA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ➔ | **3SE5122-3KA00** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5122-1LA00** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ➔ | **3SE5122-3LA00** | | 1 | 1 unit | 41K |

3SE5122-0BA00

3SE5122-0BA00-1CA0

3SE5122-1KA00

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Use corresponding high-grade steel lever.

Note:
For the selection aid, see page 12/13.

| Version | | Diameter mm | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Operating mechanisms** | | | | | | | | |
| **Plain plungers** | | | | | | | | |
| • High-grade steel plungers | | 8.5 | ➔ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| **Rounded plungers, type B, according to EN 50041** | | | | | | | | |
| • High-grade steel plunger, with 3 mm overtravel | | 10 | ➔ | **3SE5000-0AC02** | | 1 | 1 unit | 41K |
| **Roller plungers, type C, according to EN 50041** | | | | | | | | |
| • High-grade steel roller, with 3 mm overtravel | | 13 | ➔ | **3SE5000-0AD02** | | 1 | 1 unit | 41K |
| **Roller levers** | | | | | | | | |
| • Metal lever | Plastic roller | 22 | ➔ | **3SE5000-0AE01** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AE02** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 22 | ➔ | **3SE5000-0AE03** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AE04** | | 1 | 1 unit | 41K |
| **Angular roller levers** | | | | | | | | |
| • Metal lever | Plastic roller | 22 | ➔ | **3SE5000-0AF01** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AF02** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 22 | ➔ | **3SE5000-0AF03** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AF04** | | 1 | 1 unit | 41K |
| **Spring rods** | | | | | | | | |
| (for switches with snap-action contacts only) | | | | | | | | |
| • Plunger made of plastic, spring of high-grade steel: | | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | | **3SE5000-0AR01** | | 1 | 1 unit | 41K |
| - Length 76 mm (spring 23.5 mm, plunger 10 mm) | | | | **3SE5000-0AR03** | | 1 | 1 unit | 41K |
| - Length 242.5 mm (spring 150 mm, plunger 50 mm) | | | | **3SE5000-0AR04** | | 1 | 1 unit | 41K |
| • Plunger and spring made of high-grade steel: | | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | | **3SE5000-0AR02** | | 1 | 1 unit | 41K |

3SE5000-0AB01

3SE5000-0AC02

3SE5000-0AD02

3SE5000-0AE01

3SE5000-0AF01

3SE5000-0AR01

➔ Positively driven actuator, necessary in safety circuits.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Version | | Diameter | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | mm | | | | | | |
| **Twist actuators** | | | | | | | | |
| **Twist actuators, for 40/56/56 mm, XL, according to EN 50041** | | | | | | | | |
| • For twist levers and rod actuators, switching right and/or left, adjustable | | -- | ➔ | **3SE5000-0AH00** | | 1 | 1 unit | 41K |
| • For fork levers, latching | | -- | ➔ | **3SE5000-0AT10** | | 1 | 1 unit | 41K |
| ***Levers*** | | | | | | | | |
| **Twist levers 27 mm, offset, type A, according to EN 50041** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA01** | | 1 | 1 unit | 41K |
| | | 30 | ➔ | **3SE5000-0AA05** | | 1 | 1 unit | 41K |
| | | 50 | ➔ | **3SE5000-0AA07** | | 1 | 1 unit | 41K |
| | 2 plastic rollers | 19 | ➔ | **3SE5000-0AA04** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA02** | | 1 | 1 unit | 41K |
| | - With ball bearing | 19 | ➔ | **3SE5000-0AA03** | | 1 | 1 unit | 41K |
| | Rubber roller | 50 | ➔ | **3SE5000-0AA08** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA11** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA12** | | 1 | 1 unit | 41K |
| **Twist levers 35 mm, offset, type A, according to EN 50041** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA15** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA16** | | 1 | 1 unit | 41K |
| **Twist levers 30 mm, straight[1], type A, according to EN 50041** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | | 30 | ➔ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| | | 50 | ➔ | **3SE5000-0AA67** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| | Rubber roller | 50 | ➔ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length** | | | | | | | | |
| • Metal lever | Plastic roller | 19 | | **3SE5000-0AA50** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | | **3SE5000-0AA51** | | 1 | 1 unit | 41K |
| | Plastic roller | 30 | | **3SE5000-0AA55** | | 1 | 1 unit | 41K |
| | | 50 | | **3SE5000-0AA57** | | 1 | 1 unit | 41K |
| | Rubber roller | 50 | | **3SE5000-0AA58** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | | **3SE5000-0AA52** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | | **3SE5000-0AA53** | | 1 | 1 unit | 41K |
| **Fork levers** (for switches with snap-action contacts only) | | | | | | | | |
| • 2 metal levers | 2 plastic rollers | 19 | ➔ | **3SE5000-0AT01** | | 1 | 1 unit | 41K |
| | 2 high-grade steel rollers | 19 | ➔ | **3SE5000-0AT02** | | 1 | 1 unit | 41K |
| • 2 high-grade steel levers | 2 plastic rollers | 19 | ➔ | **3SE5000-0AT03** | | 1 | 1 unit | 41K |
| | 2 high-grade steel rollers | 19 | ➔ | **3SE5000-0AT04** | | 1 | 1 unit | 41K |
| **Rod levers 200 mm** | | | | | | | | |
| • Aluminum rod | | 6 | | **3SE5000-0AA80** | | 1 | 1 unit | 41K |
| • Spring rod | | 6 | | **3SE5000-0AA81** | | 1 | 1 unit | 41K |
| • Plastic rod | | 6 | | **3SE5000-0AA82** | | 1 | 1 unit | 41K |

3SE5000-0AH00

3SE5000-0AA01

3SE5000-0AA24

3SE5000-0AA60

3SE5000-0AA50

3SE5000-0AT01

3SE5000-0AA80

➔ Positively driven actuator, necessary in safety circuits.

[1] Can be clinch mounted (rotated 180°, rear of lever).

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Enclosure width 56 mm, XL

### Selection and ordering data

***Complete units***

4 or 5 contacts · Degree of protection IP66/IP67 · Cable entry 3 x (M20 x 1.5) · Operating points according to EN 50041

| Version | Contacts | LEDs | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 56 mm, XL** | | | | | | | | |
| ***Plain plungers*** | | | | | | | | |
| **With high-grade steel plunger 8.5 mm** | | | | | | | | |
| • Snap-action contacts | 2 × (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0CB01** | | 1 | 1 unit | 41K |
| ***Rounded plungers*** | | | | | | | | |
| **With high-grade steel plunger 10 mm, with 3 mm overtravel** | | | | | | | | |
| • Slow-action contacts and Slow-action contacts with make-before-break, 2 mm travel difference | 1 NO + 1 NC<br>1 NO + 2 NC | -- | ⊕ | **3SE5162-0EC02** | | 1 | 1 unit | 41K |
| ***Roller plungers*** | | | | | | | | |
| **With high-grade steel roller 13 mm, with 3 mm overtravel** | | | | | | | | |
| • Slow-action contacts | 2 × (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0BD02** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 2 × (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0CD02** | | 1 | 1 unit | 41K |
| ***Roller levers*** | | | | | | | | |
| **With metal lever and plastic roller 22 mm** | | | | | | | | |
| • Slow-action contacts | 2 × (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0BE01** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 2 × (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0CE01** | | 1 | 1 unit | 41K |
| **With metal lever and high-grade steel roller 22 mm** | | | | | | | | |
| • Snap-action contacts | 2 × (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0CE02** | | 1 | 1 unit | 41K |
| ***Angular roller levers*** | | | | | | | | |
| **With metal lever and plastic roller 22 mm** | | | | | | | | |
| • Snap-action contacts | 2 × (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0CF01** | | 1 | 1 unit | 41K |
| ***Twist levers*** | | | | | | | | |
| **With metal lever 27 mm and plastic roller 19 mm** | | | | | | | | |
| • Snap-action contacts | 2 x (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0CH01** | | 1 | 1 unit | 41K |
| **With high-grade steel lever 27 mm and high-grade steel roller 19 mm** | | | | | | | | |
| With increased corrosion protection[2] | | | | | | | | |
| • Snap-action contacts (gold contacts) | 2 x (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0CH12-1CC1** | | 1 | 1 unit | 41K |
| ***Twist levers, adjustable length*** | | | | | | | | |
| **With high-grade steel lever 100 mm, with grid hole and high-grade steel roller 19 mm** | | | | | | | | |
| With increased corrosion protection[2], 3SX5100-3B adapter included | | | | | | | | |
| • Snap-action contacts (gold contacts) | 2 x (1 NO + 1 NC) | -- | ⊕ | **3SE5162-0CH63-1AN4** | | 1 | 1 unit | 41K |

3SE5162-0CB01

3SE5162-0EC02

3SE5162-0BD02

3SE5162-0BE01

3SE5162-0CF01

3SE5162-0CH01

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Use corresponding high-grade steel lever.

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/41.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## *Modular system*

4 or 6 contacts · Degree of protection IP66/IP67 · Cable entry 3 x (M20 x 1.5) · Operating points according to EN 50041

### Basic switches · Enclosure width 56 mm, XL

| Version | Contacts | LEDs | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| ***Rounded plungers*** | | | | | | | | |
| • Slow-action contacts | 2 × (1 NO + 1 NC) | -- | ➔ | **3SE5162-0BA00** | | 1 | 1 unit | 41K |
| - With make-before-break | 2 x (1 NO + 2 NC) | -- | ➔ | **3SE5162-0DA00** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 2 × (1 NO + 1 NC) | -- | ➔ | **3SE5162-0CA00** | | 1 | 1 unit | 41K |
| With increased corrosion protection[1] | | | | | | | | |
| • Slow-action contacts | 2 × (1 NO + 1 NC) | -- | ➔ | **3SE5162-0BA00-1CA0** | | 1 | 1 unit | 41K |
| - With make-before-break | 2 x (1 NO + 2 NC) | -- | ➔ | **3SE5162-0DA00-1CA0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 2 × (1 NO + 1 NC) | -- | ➔ | **3SE5162-0CA00-1CA0** | | 1 | 1 unit | 41K |

3SE5162-0BA00

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Use corresponding high-grade steel lever.

Note:
For the selection aid, see page 12/13.

### Operating mechanisms

| Version | | Diameter mm | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Plain plungers** | | | | | | | | |
| • High-grade steel plunger | | 8.5 | ➔ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| **Rounded plungers, type B, according to EN 50041** | | | | | | | | |
| • High-grade steel plunger, with 3 mm overtravel | | 10 | ➔ | **3SE5000-0AC02** | | 1 | 1 unit | 41K |
| **Roller plungers, type C, according to EN 50041** | | | | | | | | |
| • High-grade steel roller, with 3 mm overtravel | | 13 | ➔ | **3SE5000-0AD02** | | 1 | 1 unit | 41K |
| **Roller levers** | | | | | | | | |
| • Metal lever | Plastic roller | 22 | ➔ | **3SE5000-0AE01** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AE02** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 22 | ➔ | **3SE5000-0AE03** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AE04** | | 1 | 1 unit | 41K |
| **Angular roller levers** | | | | | | | | |
| • Metal lever | Plastic roller | 22 | ➔ | **3SE5000-0AF01** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AF02** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 22 | ➔ | **3SE5000-0AF03** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 22 | ➔ | **3SE5000-0AF04** | | 1 | 1 unit | 41K |
| **Spring rods** (for switches with snap-action contacts only) | | | | | | | | |
| • Plunger made of plastic, spring of high-grade steel: | | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | | **3SE5000-0AR01** | | 1 | 1 unit | 41K |
| - Length 76 mm (spring 23.5 mm, plunger 10 mm) | | | | **3SE5000-0AR03** | | 1 | 1 unit | 41K |
| - Length 242.5 mm (spring 150 mm, plunger 50 mm) | | | | **3SE5000-0AR04** | | 1 | 1 unit | 41K |
| • Plunger and spring made of high-grade steel: | | 7 | | | | | | |
| - Length 142.5 mm (spring 50 mm, plunger 50 mm) | | | | **3SE5000-0AR02** | | 1 | 1 unit | 41K |

3SE5000-0AB01

3SE5000-0AC02

3SE5000-0AD02

3SE5000-0AE01

3SE5000-0AF01

3SE5000-0AR01

➔ Positively driven actuator, necessary in safety circuits.

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## Enclosure width 56 mm, XL

| Version | | Diameter mm | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Twist actuators** | | | | | | | | |
| 3SE5000-0AH00 | **Twist actuators, for 40/56/56 mm, XL, according to EN 50041** | | | | | | | |
| | • For twist levers and rod actuators, switching right and/or left, adjustable | -- | ➔ | **3SE5000-0AH00** | | 1 | 1 unit | 41K |
| | • For fork levers, latching | -- | ➔ | **3SE5000-0AT10** | | 1 | 1 unit | 41K |
| | ***Levers*** | | | | | | | |
| 3SE5000-0AA01 | **Twist levers 27 mm, offset, type A, according to EN 50041** | | | | | | | |
| | • Metal lever, Plastic roller | 19 | ➔ | **3SE5000-0AA01** | | 1 | 1 unit | 41K |
| | | 30 | ➔ | **3SE5000-0AA05** | | 1 | 1 unit | 41K |
| | | 50 | ➔ | **3SE5000-0AA07** | | 1 | 1 unit | 41K |
| | 2 plastic rollers | 19 | ➔ | **3SE5000-0AA04** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA02** | | 1 | 1 unit | 41K |
| | - With ball bearing | 19 | ➔ | **3SE5000-0AA03** | | 1 | 1 unit | 41K |
| | Rubber roller | 50 | ➔ | **3SE5000-0AA08** | | 1 | 1 unit | 41K |
| | • High-grade steel lever, Plastic roller | 19 | ➔ | **3SE5000-0AA11** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA12** | | 1 | 1 unit | 41K |
| | **Twist levers 35 mm, offset, type A, according to EN 50041** | | | | | | | |
| | • Metal lever, Plastic roller | 19 | ➔ | **3SE5000-0AA15** | | 1 | 1 unit | 41K |
| | • High-grade steel lever, Plastic roller | 19 | ➔ | **3SE5000-0AA16** | | 1 | 1 unit | 41K |
| 3SE5000-0AA24 | **Twist levers 30 mm, straight[1], type A, according to EN 50041** | | | | | | | |
| | • Metal lever, Plastic roller | 19 | ➔ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | | 30 | ➔ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| 3SE5000-0AA60 | **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | |
| | • Metal lever, Plastic roller | 19 | ➔ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| | | 50 | ➔ | **3SE5000-0AA67** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| | Rubber roller | 50 | ➔ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| | • High-grade steel lever, Plastic roller | 19 | ➔ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | ➔ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |
| 3SE5000-0AA50 | **Twist levers 100 mm, adjustable length** | | | | | | | |
| | • Metal lever, Plastic roller | 19 | | **3SE5000-0AA50** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | | **3SE5000-0AA51** | | 1 | 1 unit | 41K |
| | Plastic roller | 30 | | **3SE5000-0AA55** | | 1 | 1 unit | 41K |
| | | 50 | | **3SE5000-0AA57** | | 1 | 1 unit | 41K |
| | Rubber roller | 50 | | **3SE5000-0AA58** | | 1 | 1 unit | 41K |
| | • High-grade steel lever, Plastic roller | 19 | | **3SE5000-0AA52** | | 1 | 1 unit | 41K |
| | High-grade steel roller | 19 | | **3SE5000-0AA53** | | 1 | 1 unit | 41K |
| 3SE5000-0AT01 | **Fork levers** (for switches with snap-action contacts only) | | | | | | | |
| | • 2 metal levers, 2 plastic rollers | 19 | ➔ | **3SE5000-0AT01** | | 1 | 1 unit | 41K |
| | 2 high-grade steel rollers | 19 | ➔ | **3SE5000-0AT02** | | 1 | 1 unit | 41K |
| | • 2 high-grade steel levers, 2 plastic rollers | 19 | ➔ | **3SE5000-0AT03** | | 1 | 1 unit | 41K |
| | 2 high-grade steel rollers | 19 | ➔ | **3SE5000-0AT04** | | 1 | 1 unit | 41K |
| 3SE5000-0AA80 | **Rod levers, type D, according to EN 50041** | | | | | | | |
| | • Aluminum rod, Length 200 mm | 6 | | **3SE5000-0AA80** | | 1 | 1 unit | 41K |
| | • Spring rod, Length 200 mm | 6 | | **3SE5000-0AA81** | | 1 | 1 unit | 41K |
| | • Plastic rod, Length 200 mm | 6 | | **3SE5000-0AA82** | | 1 | 1 unit | 41K |
| | • Plastic rod, Length 330 mm | 6 | | **3SE5000-0AA83** | | 1 | 1 unit | 41K |

➔ Positively driven actuator, necessary in safety circuits.

[1] Can be clinch mounted (rotated 180°, rear of lever).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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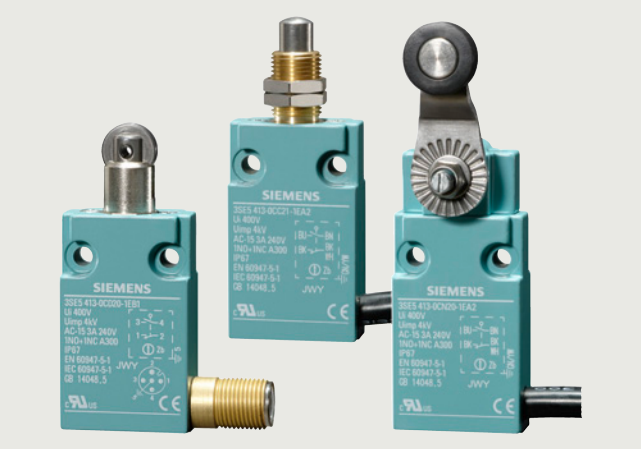
## Overview




Compact design in width 30 mm

Particularly in harsh environments or on equipment with limited space, the small 3SE54 position switches in compact design with a depth of 16 mm and a weight of only 80 g (without cable) are ideal. Above all the versions with molded cable can be mounted in the most confined spaces.

3SE54 compact position switches are available in two different widths as complete units:

- The 3SE5413 series complies with the EU standard and features a 30 mm wide enclosure with drilled holes at a spacing of 20 mm.
- The 3SE5423 series meets the requirements of the US market and features a 40 mm wide enclosure with drilled holes at a spacing of 25 mm.

Both the enclosure and the actuator head are made of metal and comply with the high degree of protection IP67.

The following actuators are available:

- Rounded plungers
- Rounded plungers with central fixing
- Rounded plungers with external seal
- Roller plungers
- Roller plungers with central fixing
- Twist levers
- Twist lever with a smaller mounting depth and lower height
- Twist levers, adjustable length

The contact block is designed with snap-action contacts 1 NO + 1 NC. The NC contact complies with the requirements for positive opening according to IEC 60947-5-1.

Connection:

- With molded cable, length 2 m or 5 m
- With M12 device plug and connecting cable, M12 socket, 5-pole, with open end, length 5 m

### *Safety circuits*

Standard IEC 60947-5-1 requires positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked according to the standard IEC 60947-5-1 with the symbol ⊖.

SIL 1 according to IEC 62061/IEC 61508 or PL c according to ISO 13849-1 can be attained with the 3SE5 position switch with ⊖ if the corresponding fail-safe evaluation units are selected and correctly installed (e.g. the 3SK safety relays or matching devices from the ASIsafe, SIMATIC or SINUMERIK product ranges).

If a second 3SE5 position switch with ⊖ is used, SIL 3/PL e can be attained.

## Benefits

- Very compact yet with the same rating as the 3SE51 standard switches, for notable space savings in confined installation conditions
- Various actuator versions available
- Roller plungers can be rotated 90°
- Twist levers can be rotated 180°; twist levers can be adjusted in 15° increments
- Time is saved when mounting the fully assembled unit
- With metal enclosure of degree of protection IP67, ideal for use in rough industrial environments
- Insensitive to electromagnetic interference

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## Compact design

### Selection and ordering data

2 snap-action contacts 1 NO + 1 NC · Degree of protection IP67 · With connecting cable or M12 device plug

| | Operating mechanism | Enclosure width mm | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units · Enclosure width 30 or 40 mm** | | | | | | | | |
| 3SE5413-0CC20-1EA2 | ***Rounded plungers*** | | | | | | | |
| | **Standard mounting** | | | | | | | |
| | • With connecting cable, 2 m | 30 | ➔ | **3SE5413-0CC20-1EA2** | | 1 | 1 unit | 41K |
| | | 40 | ➔ | **3SE5423-0CC20-1EA2** | | 1 | 1 unit | 41K |
| | • With connecting cable, 5 m | 30 | ➔ | **3SE5413-0CC20-1EA5** | | 1 | 1 unit | 41K |
| | • With M12 device plug, 5-pole | 30 | ➔ | **3SE5413-0CC20-1EB1** | | 1 | 1 unit | 41K |
| | | 40 | ➔ | **3SE5423-0CC20-1EB1** | | 1 | 1 unit | 41K |
| 3SE5413-0CC21-1EA2 | **With central fixing M12 x 1** | | | | | | | |
| | • With connecting cable, 2 m | 30 | ➔ | **3SE5413-0CC21-1EA2** | | 1 | 1 unit | 41K |
| | | 40 | ➔ | **3SE5423-0CC21-1EA2** | | 1 | 1 unit | 41K |
| 3SE5413-0CC22-1EA2 | **With external seal** | | | | | | | |
| | • With connecting cable, 2 m | 30 | ➔ | **3SE5413-0CC22-1EA2** | | 1 | 1 unit | 41K |
| | | 40 | ➔ | **3SE5423-0CC22-1EA2** | | 1 | 1 unit | 41K |
| 3SE5413-0CD20-1EA2 | ***Roller plungers*** | | | | | | | |
| | **Standard mounting** | | | | | | | |
| | • With connecting cable, 2 m | 30 | ➔ | **3SE5413-0CD20-1EA2** | | 1 | 1 unit | 41K |
| | | 40 | ➔ | **3SE5423-0CD20-1EA2** | | 1 | 1 unit | 41K |
| | - Actuator head rotated 90° | 30 | ➔ | **3SE5413-0CD23-1EA2** | | 1 | 1 unit | 41K |
| | • With connecting cable, 5 m | 30 | ➔ | **3SE5413-0CD20-1EA5** | | 1 | 1 unit | 41K |
| | • With M12 device plug, 5-pole | 30 | ➔ | **3SE5413-0CD20-1EB1** | | 1 | 1 unit | 41K |
| | | 40 | ➔ | **3SE5423-0CD20-1EB1** | | 1 | 1 unit | 41K |
| 3SE5413-0CD23-1EA2 | **With central fixing M12 x 1** | | | | | | | |
| | • With connecting cable, 2 m | 30 | ➔ | **3SE5413-0CD21-1EA2** | | 1 | 1 unit | 41K |
| | | 40 | ➔ | **3SE5423-0CD21-1EA2** | | 1 | 1 unit | 41K |
| 3SE5413-0CN20-1EA2 | ***Twist levers*** | | | | | | | |
| | **Standard mounting** | | | | | | | |
| | • With connecting cable, 2 m | 30 | ➔ | **3SE5413-0CN20-1EA2** | | 1 | 1 unit | 41K |
| | | 40 | ➔ | **3SE5423-0CN20-1EA2** | | 1 | 1 unit | 41K |
| | • With connecting cable, 5 m | 30 | ➔ | **3SE5413-0CN20-1EA5** | | 1 | 1 unit | 41K |
| | • With M12 device plug, 5-pole | 30 | ➔ | **3SE5413-0CN20-1EB1** | | 1 | 1 unit | 41K |
| | | 40 | ➔ | **3SE5423-0CN20-1EB1** | | 1 | 1 unit | 41K |
| | **Twist lever with a smaller mounting depth and lower height** | | | | | | | |
| | • With connecting cable, 2 m | 30 | ➔ | **3SE5413-0CP20-1EA2** | | 1 | 1 unit | 41K |
| | **Twist levers, adjustable length** | | | | | | | |
| | • With connecting cable, 2 m | 30 | ➔ | **3SE5413-0CQ20-1EA2** | | 1 | 1 unit | 41K |
| **Connecting cable** | | | | | | | | |
| 3SX5601-3SB55 | **Connecting cable** With M12 socket, 5-pole, open end, length 5 m | -- | | **3SX5601-3SB55** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

Open-type design

Their compact design makes these switches particularly suitable for use in confined conditions. The mountings and operating points comply with EN 50047.

The switches are equipped with two or three contacts in snap-action, slow-action or slow-action with make-before-break versions. The stroke is 6 mm.

The empty enclosure can be equipped with all contact block versions (see page 12/48).

Improved version

The switches have a robust metal plunger with increased abrasion resistance (instead of the rounded plunger).
This enables the switch to be approached from a 30° angle.

## Selection and ordering data

2 or 3 contacts · Degree of protection IP20[1] (2 contacts), IP10 (3 contacts) · Mounting and operating points according to EN 50047

| Version | Contacts | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Plastic enclosures · Enclosure width 30 mm** | | | | | | | |
| 3SE5250-0BC05 | **With metal plunger** | | | | | | |
| | • Slow-action contacts | 1 NO + 1 NC | ⊕ | **3SE5250-0BC05** | | 1 | 1 unit | 41K |
| | | 1 NO + 2 NC | ⊕ | **3SE5250-0KC05** | | 1 | 1 unit | 41K |
| | | 2 NO + 1 NC | ⊕ | **3SE5250-0PC05** | | 1 | 1 unit | 41K |
| | - With make-before-break | 1 NO + 2 NC | ⊕ | **3SE5250-0MC05** | | 1 | 1 unit | 41K |
| 3SE5250-0KC05 | • Snap-action contacts | 1 NO + 1 NC | ⊕ | **3SE5250-0CC05** | | 1 | 1 unit | 41K |
| | | 1 NO + 2 NC | ⊕ | **3SE5250-0LC05** | | 1 | 1 unit | 41K |
| 3SE5250-0AC05 | • Empty enclosures without contact block | -- | ⊕ | **3SE5250-0AC05** | | 1 | 1 unit | 41K |
| 3SE5050-0BA00 | **Contact blocks with 2 contacts** For open-type design[2] | | | | | | |
| | • Slow-action contacts | 1 NO + 1 NC | ⊕ | **3SE5050-0BA00** | | 1 | 1 unit | 41K |
| | • Snap-action contacts | 1 NO + 1 NC | | | | | | |
| | - Standard | | ⊕ | **3SE5050-0CA00** | | 1 | 1 unit | 41K |
| | - Contact distance 2 x 2 mm | | ⊕ | **3SE5050-0GA00** | | 1 | 1 unit | 41K |
| | - Short stroke | | ⊕ | **3SE5050-0NA00** | | 1 | 1 unit | 41K |

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) With the conductor connected and the clamping screw tightened.

2) Contact blocks with 3 contacts, see page 12/48.

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## Accessories

### Selection and ordering data

The quick-release devices and plug-in connections are used for fast installation and replacement of position switches.

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Service box for position switches** | | | | | | |
| 3SX5110-0BK | Contents:<br>• Three basic switches with rounded plunger in plastic version in enclosure widths 31, 40, 50 mm<br>• Various actuator heads:<br>- Plain plunger<br>- Roller plunger<br>- Roller lever<br>- Angular roller lever<br>- Spring rod<br>- Twist actuator with various lever versions<br>• Accessories: M12 device plug, cover yellow, protective cap, two contact blocks<br>• SIRIUS 3SE brochure in German and English<br>For more information, see flyer. | **3SX5110-0BK** | | 1 | 1 unit | 41K |
| **Quick-release devices for enclosure width 40 mm** | | | | | | |
| 3SY3110 | **Adapter plates with screws** | **3SY3110** | | 1 | 1 unit | 41K |
| 3SY3027 | **Base plate with locking lever** | **3SY3027** | | 1 | 1 unit | 41K |
| **Plug-in connections for M20 x 1.5 connection threads** | | | | | | |
| 3SY3131 3SX5100-1SS05 | **Device plugs (6-pole + PE), for M20 x 1.5**<br>For max. 250 V, 10 A,<br>With connecting cable 0.75 mm$^2$,<br>plastic,<br>degree of protection IP65,<br>ambient temperature -40 to +90 °C | **3SY3131** | | 1 | 1 unit | 41K |
| 3SX5100-1SS51 3SX5100-1SS08 | **M12 device plugs, plastic, for M20 x 1.5** | | | | | |
| | • 4-pole, for max. 250 V, 4 A, $U_{imp}$ = 2 500 V | **3SY3127** | | 1 | 1 unit | 41K |
| | • 5-pole, for max. 125 V, 4 A, $U_{imp}$ = 1 500 V | | | | | |
| | - Yellow/green cable for PE on pin 5 | **3SY3128** | | 1 | 1 unit | 41K |
| | - Gray cable on pin 5, without PE | **3SX5100-1SS05** | | 1 | 1 unit | 41K |
| | • 5-pole[1], for max. 60 V, 1.5 A, $U_{imp}$ = 800 V | **3SX5100-1SS51** | | 1 | 1 unit | 41K |
| | • 8-pole, for max. 30 V, 1.5 A, $U_{imp}$ = 800 V | **3SX5100-1SS08** | | 1 | 1 unit | 41K |
| 3SX5601-2GA03 | **Connecting cables**<br>• With M12 socket, 8-pole, straight, open end, rated voltage 30 V, rated current 2 A | | | | | |
| | - Length 3 m | **3SX5601-2GA03** | | 1 | 1 unit | 41K |
| | - Length 5 m | **3SX5601-2GA05** | | 1 | 1 unit | 41K |
| | - Length 10 m | **3SX5601-2GA10** | | 1 | 1 unit | 41K |
| | - Length 15 m NEW | **3SX5601-2GA15** | | 1 | 1 unit | 41K |
| 3SX5601-3SB54 | • With M12 socket, open end, length 5 m | | | | | |
| | - 4-pole | **3SX5601-3SB54** | | 1 | 1 unit | 41K |
| | - 5-pole | **3SX5601-3SB55** | | 1 | 1 unit | 41K |
| 3SX5601-3SV15 | **Connecting cable**<br>With M12 socket, 5-pole and M12 plug, 5-pole,<br>length 1 m | **3SX5601-3SV15** | | 1 | 1 unit | 41K |
| 6ES7194-6KB00-0XA0 | **ET 200 Y-cable[1] for connecting 2 x 1-channel sensors**<br>With M12 plug, 5-pole on 2 x M12 sockets, 5-pole,<br>length 200 mm | **6ES7194-6KB00-0XA0** | | 1 | 1 unit | 250 |

[1] Suitable for wiring sensors that are connected to all fail-safe block I/O modules in the SIMATIC ET 200eco PN and ET 200AL series.
For more information, see page 12/88 onwards.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Plug-in connections for M20 x 1.5 connection threads** | | | | | | |
| 3RK1902-4CA00-4AA0 | **Cable box M12**<br>Angled, 4-pole,<br>max. 4 A with cable connection space,<br>max. 0.75 $mm^2$ | **3RK1902-4CA00-4AA0** | | 1 | 1 unit | 42D |
| 3RK1902-4BA00-5AA0 | **M12 plugs, 5-pole** | | | | | |
| | • Straight, separate item | **3RK1902-4BA00-5AA0** | | 1 | 1 unit | 42D |
| | • Angled, separate item | **3RK1902-4DA00-5AA0** | | 1 | 1 unit | 42D |
| **Adapters and cable glands for M20 x 1.5 connection threads** | | | | | | |
| | **Adapters according to CSA, UL and TÜV**<br>For cable entry from<br>M20 x 1.5 to NPT 1/2 | | | | | |
| 3SX9917 | • Metal | **3SX9917** | | 1 | 1 unit | 41K |
| 3SX9918 | • Plastic | **3SX9918** | | 1 | 1 unit | 41K |
| | **Cable glands M20 x 1.5**<br>Plastic | | | | | |
| 3SX9926 | • Degree of protection IP67 | **3SX9926** | | 1 | 1 unit | 41K |
| 3SX5601-1A | • High degree of protection IP69, IEC 60529 | **3SX5601-1A** | | 1 | 1 unit | 41K |

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## Optional accessories and spare parts

### Selection and ordering data

| | Version | Color/ contacts | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Optional accessories for 3SE51, 3SE52** | | | | | | | | |
| 3SE5000-0AC30 | **Protective caps**<br>For rounded plungers according to EN 50047, 3SE5...-..C05 | Black | | **3SE5000-0AC30** | | 1 | 1 unit | 41K |
| 3SX5100-3B | **Adapters with screws**[1]<br>For an increase in the mounting depth on the 3SE5000-0AH00 twist actuator, in combination with twist lever with adjustable length or rod lever | -- | | **3SX5100-3B** | | 1 | 1 unit | 41K |
| 3SX5100-1A | **Mounting plate**<br>Suitable for 3SE523. and 3SE521. position switches with a width of 31 mm (in particular for control cabinet types) | -- | | **3SX5100-1A** | | 1 | 1 unit | 41K |
| **Spare parts for 3SE51, 3SE52** | | | | | | | | |
| 3SE5232-0AC05 | **Empty enclosures, plastic** | Turquoise | | | | | | |
| | • Enclosure width 31 mm | | | **3SE5232-0AC05** | | 1 | 1 unit | 41K |
| | - With increased corrosion protection[2] | | | **3SE5232-0AC05-1CA0** | | 1 | 1 unit | 41K |
| | • Enclosure width 40 mm | | | **3SE5132-0AA00** | | 1 | 1 unit | 41K |
| | • Enclosure width 50 mm | | | **3SE5242-0AC05** | | 1 | 1 unit | 41K |
| | - With increased corrosion protection[2] | | | **3SE5242-0AC05-1CA0** | | 1 | 1 unit | 41K |
| 3SE5212-0AC05 | **Empty enclosures, metal** | Turquoise | | | | | | |
| | • Enclosure width 31 mm | | | **3SE5212-0AC05** | | 1 | 1 unit | 41K |
| | - With increased corrosion protection[2] | | | **3SE5212-0AC05-1CA0** | | 1 | 1 unit | 41K |
| | • Enclosure width 40 mm | | | **3SE5112-0AA00** | | 1 | 1 unit | 41K |
| | - With increased corrosion protection[2] | | | **3SE5112-0AA00-1CA0** | | 1 | 1 unit | 41K |
| | • Enclosure width 56 mm | | | **3SE5122-0AA00** | | 1 | 1 unit | 41K |
| | - With increased corrosion protection[2] | | | **3SE5122-0AA00-1CA0** | | 1 | 1 unit | 41K |
| | • Enclosure width 56 mm, XL[3] | | | **3SE5162-0AA00** | | 1 | 1 unit | 41K |
| 3SE5000-0BA00 | **Contact blocks with 2 contacts**[4] | | | | | | | |
| | • Slow-action contacts | 1 NO + 1 NC | ⊖ | **3SE5000-0BA00** | | 1 | 1 unit | 41K |
| | • Snap-action contacts | 1 NO + 1 NC | | | | | | |
| | - Standard | | ⊖ | **3SE5000-0CA00** | | 1 | 1 unit | 41K |
| | - Gold-plated contacts | | ⊖ | **3SE5000-0CA00-1AC1** | | 1 | 1 unit | 41K |
| | - Contact distance 2 x 2 mm | | ⊖ | **3SE5000-0GA00** | | 1 | 1 unit | 41K |
| | - Short stroke | | ⊖ | **3SE5000-0NA00** | | 1 | 1 unit | 41K |
| 3SE5000-0KA00 | **Contact blocks with 3 contacts** | | | | | | | |
| | • Slow-action contacts | 1 NO + 2 NC | ⊖ | **3SE5000-0KA00** | | 1 | 1 unit | 41K |
| | | 2 NO + 1 NC | ⊖ | **3SE5000-0PA00** | | 1 | 1 unit | 41K |
| | - With make-before-break | 1 NO + 2 NC | ⊖ | **3SE5000-0MA00** | | 1 | 1 unit | 41K |
| | • Snap-action contacts | 1 NO + 2 NC | ⊖ | **3SE5000-0LA00** | | 1 | 1 unit | 41K |
| 3SE5060-0BA00 | **Contact blocks for XL enclosure**[3] | | | | | | | |
| | • Slow-action contacts | 1 NO + 1 NC | ⊖ | **3SE5060-0BA00** | | 1 | 1 unit | 41K |
| | - With make-before-break | 1 NO + 2 NC | ⊖ | **3SE5060-0MA00** | | 1 | 1 unit | 41K |
| | • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5060-0CA00** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K.

1) Possibly required for the conversion from 3SE21 to 3SE51.

2) Use corresponding high-grade steel lever.

3) XL enclosures may only be equipped with combinations of contact elements, see pages 12/12, 12/40 and 12/41.

4) Unsuitable for open-type position switches, see page 12/45.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Rated voltage LEDs | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | | V | | | | | |
| **Spare parts for 3SE51, 3SE52** | | | | | | | |
| 3SE5230-1AA00 | **Covers for plastic enclosures, width 31 mm** | | | | | | |
| | • Turquoise with LED | 24 DC | **3SE5230-1AA00** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5230-3AA00** | | 1 | 1 unit | 41K |
| | • Yellow | -- | **3SE5230-0AA00-1AG0** | | 1 | 1 unit | 41K |
| | - With LED | 24 DC | **3SE5230-1AA00-1AG0** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5230-3AA00-1AG0** | | 1 | 1 unit | 41K |
| 3SE5130-1AA00-1AG0 | **Covers for plastic enclosures, width 40 mm** | | | | | | |
| | • Turquoise with LED | 24 DC | **3SE5130-1AA00** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5130-3AA00** | | 1 | 1 unit | 41K |
| | • Yellow | -- | **3SE5130-0AA00-1AG0** | | 1 | 1 unit | 41K |
| | - With LED | 24 DC | **3SE5130-1AA00-1AG0** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5130-3AA00-1AG0** | | 1 | 1 unit | 41K |
| 3SE5240-1AA00 | **Covers for plastic enclosures, width 50 mm** | | | | | | |
| | • Turquoise with LED | 24 DC | **3SE5240-1AA00** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5240-3AA00** | | 1 | 1 unit | 41K |
| | • Yellow | -- | **3SE5240-0AA00-1AG0** | | 1 | 1 unit | 41K |
| | - With LED | 24 DC | **3SE5240-1AA00-1AG0** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5240-3AA00-1AG0** | | 1 | 1 unit | 41K |
| 3SE5210-1AA00 | **Covers for metal enclosures, width 31 mm** | | | | | | |
| | • Turquoise with LED | 24 DC | **3SE5210-1AA00** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5210-3AA00** | | 1 | 1 unit | 41K |
| | • Yellow | -- | **3SE5210-0AA00-1AG0** | | 1 | 1 unit | 41K |
| | - With LED | 24 DC | **3SE5210-1AA00-1AG0** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5210-3AA00-1AG0** | | 1 | 1 unit | 41K |
| 3SE5110-1AA00 | **Covers for metal enclosures, width 40 mm** | | | | | | |
| | • Turquoise with LED | 24 DC | **3SE5110-1AA00** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5110-3AA00** | | 1 | 1 unit | 41K |
| | • Yellow | -- | **3SE5110-0AA00-1AG0** | | 1 | 1 unit | 41K |
| | - With LED | 24 DC | **3SE5110-1AA00-1AG0** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5110-3AA00-1AG0** | | 1 | 1 unit | 41K |
| 3SE5120-0AA00-1AG0 | **Covers for metal enclosures, width 56 mm** | | | | | | |
| | • Turquoise with LED | 24 DC | **3SE5120-1AA00** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5120-3AA00** | | 1 | 1 unit | 41K |
| | • Yellow | -- | **3SE5120-0AA00-1AG0** | | 1 | 1 unit | 41K |
| | - With LED | 24 DC | **3SE5120-1AA00-1AG0** | | 1 | 1 unit | 41K |
| | | 230 AC | **3SE5120-3AA00-1AG0** | | 1 | 1 unit | 41K |
| 3SE5160-0AA00-1AG0 | **Covers for XL metal enclosures, width 56 mm** | | | | | | |
| | • Yellow | -- | **3SE5160-0AA00-1AG0** | | 1 | 1 unit | 41K |

12

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## General data

### Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-position-switches<br>Industry Mall, see www.siemens.com/product?3SE<br>Configurator, see www.siemens.com/sirius/configurators | Configuration Manual, see https://support.industry.siemens.com/cs/ww/en/view/43920150 |

Safety switches with separate actuator are used where the position of doors, covers or protective grilles must be monitored for safety reasons.

3SE5 safety switches with separate actuator have the same enclosures as the 3SE5 position switches (modular system).

3SE5 safety switches with head for separate actuator

#### *Design*

Enclosure sizes

The 3SE5 safety switches are available in four different enclosure sizes:

- Plastic enclosures according to EN 50047, 31 mm wide, IP65, 1 cable entry
- Metal enclosures according to EN 50047, 31 mm wide, IP66/IP67, 1 cable entry
- Plastic and metal enclosures according to EN 50041, 40 mm wide, IP66/IP67, 1 cable entry
- Plastic enclosures, 50 mm wide, IP66/IP67, 2 cable entries
- Metal enclosures, 56 mm wide, IP66/IP67, 3 cable entries

Also available are safety switches in the 3SE2 series which have been developed in this form according to general market requirements:

- Molded-plastic enclosures outside of the standards, enclosure width 52 mm, IP67

Enclosure versions

Various basic versions can be selected for the enclosures of the 3SE5 series:

- Available with 2- or 3-pole contact blocks designed as slow-action contacts
- Optional LED status display
- With mounted 4- or 5-pole M12 device plug, also for connection to field modules, such as SIMATIC ET 200 (available for the wide enclosures as an accessory for self-assembly)
- With 6-pole device plug + PE on the metal enclosures
- Similarly with a combination of plug and LED displays
- AS-Interface version with integrated ASIsafe electronics for all enclosure designs (see page 12/102)

For a description of the basic switches, see page 12/5.

#### *Operation*

The actuator head is included in the scope of supply.
For actuation from four directions it can be adjusted through 4 × 90°. The switches can also be approached from above.

The actuator heads of the 3SE2243 and 3SE2257 switches with special enclosures cannot be changed. The switches can be approached from the two broad sides and from above.

The actuator is not included in the scope of supply of the safety switches and must be ordered separately from a choice of different versions to suit the application (see page 12/58).

The actuator is encoded. Simple overruling by hand or auxiliary devices is impossible.

Radius actuators

The safety switches with radius actuators are particularly suitable for rotary protective devices. The movable actuation key allows even small radii to be approached. Damage to the switch and the actuator due to inaccurate approach is prevented.

Locking devices

A high-grade steel blocking insert for attaching up to eight padlocks is available for even more security (see page 12/69).

Blocking inserts with padlock

Dust protection

For use in dusty environments, a protective cap made of rubber is offered that protects the actuator entries of the actuator head from contamination (see page 12/69).

#### *Contact reliability*

The contact blocks ensure an extremely high contact stability. This applies even when the devices are switching low voltages and currents.

#### *Positive opening* ⊖

The NC contacts of the switch are forced open mechanically, positively driven and reliably by the plunger. This is referred to as "positive opening".

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## Benefits

The 3SE5 safety switches with separate actuator differ from the previous series through the following new properties:

- All enclosure sizes with increased corrosion protection are optionally available with an LED signaling indicator.
- The 3-pole contact block 1 NO + 2 NC is available for all enclosure sizes.
- The plastic enclosure has simple and fast wiring equipment which makes it possible to save approx. 20 to 25% of the time when connecting.
- The ASIsafe electronics are integrated in the enclosure for the versions with AS-Interface connection (see page 12/102); an additional adapter is not required.

## Application

Safety switches with separate actuator are used where the position of doors, covers or protective grilles must be monitored for safety reasons.For more information about protective door monitoring applications, see Flyer.

The safety switch can only be operated with the matching coded actuator. Simple overruling by hand or auxiliary devices is impossible.

Devices are available with enclosure versions to suit the particular ambient conditions. The high-grade steel actuator is suitable for extreme ambient conditions down to -40 °C. Different control tasks can be performed with the contact blocks best suited for the particular purpose. Dimensions and fixing points of the enclosure are according to EN 50041 or EN 50047 standards. The devices are suitable for use in any climate.

### *Standards*

The switches comply with IEC 60947-5-1 (Electromechanical Control Circuit Devices).

The protective measure of "total insulation" by the plastic enclosure is ensured by the use of plastic screw glands.

### *Safety position switches*

For controls according to IEC 60204-1 the devices can be used as a safety position switch. They comply with ISO 14119. A TÜV Certificate is available. To secure position switches against changes in their position, positively-driven techniques must be employed on installation.

### *Safety circuits*

Standard IEC 60947-5-1 requires positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked according to the standard IEC 60947-5-1 with the symbol ⊖.

SIL 2 according to IEC 62061/IEC 61508 or PL d according to ISO 13849-1 can be attained with a safety switch with a separate actuator with ⊖ if the corresponding fail-safe evaluation units are selected and correctly installed (e.g. the 3SK safety relays or matching devices from the ASIsafe, SIMATIC or SINUMERIK product ranges).

If a second 3SE5 safety switch with ⊖ is used, SIL 3/PL e can be attained.

### *Evaluation of safety functions*

Safety Evaluation in the TIA Selection Tool

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.

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## General data

### Technical specifications

| Type | | 3SE51..-..V.., 3SE52..-..V.. | 3SE2257-.XX.. | | 3SE2243-.XX.. | |
|---|---|---|---|---|---|---|
| **General data** | | | | | | |
| **Standards** | | IEC 60947-5-1, ISO 14119 | | | | |
| **Rated insulation voltage $U_i$** | V | 400 | 500 | | | |
| **Pollution degree** according to IEC 60664-1 | | Class 3 | Class 3 | | | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 6 | | | | |
| **Rated operational voltage $U_e$** | V | 400 AC; over 300 V AC same potential only | 500 AC; over 380 V AC same potential only | | | |
| **Conventional thermal current $I_{th}$** | A | 6 | 10 | | | |
| **Rated operational current $I_e$** | | | 1-pole | | 3-pole | |
| • With alternating current 50/60 Hz | | $I_e$/AC-15 | $I_e$/AC-12 | $I_e$/AC-15 | $I_e$/AC-12 | $I_e$/AC-15 |
| - At 24 V | A | 6 | 10 | 10 | 10 | 10 |
| - At 120 V | A | 6 | 10 | 10 | 10 | 10 |
| - At 240 V | A | 4 | 10 | 6 | 10 | 4 |
| - At 400 V | A | 4 | 10 | 4 | 10 | 4 |
| - At 500 V | A | -- | 10 | 3 | 10 | 3 |
| • For direct current | | $I_e$/DC-13 | $I_e$/DC-12 | $I_e$/DC-13 | $I_e$/DC-12 | $I_e$/DC-13 |
| - At 24 V | A | 3 | 10 | 10 | 10 | 10 |
| - At 125 V | A | 0.55 | -- | -- | -- | -- |
| - At 250 V | A | 0.27 | -- | -- | -- | -- |
| - At 110 V | A | -- | 4 | 1 | 4 | 1 |
| - At 220 V | A | -- | 1 | 0.4 | 1 | 0.4 |
| - At 400 V | A | 0.12 | -- | -- | -- | -- |
| - At 440 V | A | -- | 0.5 | 0.2 | 0.5 | 0.2 |
| **Short-circuit protection** | | | | | | |
| • With DIAZED fuse links, operational class gG | A | 6 | 6 | | | |
| • With fuse links, quick | A | -- | 10 | | | |
| • With miniature circuit breaker, C characteristic ($I_{K< 400 A}$) | A | 1 | -- | | | |
| **Mechanical endurance** | | 1 x $10^6$ operating cycles | | | | |
| **Electrical endurance** | | | | | | |
| • With 3RH21 contactors size S00 and 3RT contactors sizes S00, S0 | | 1 x $10^6$ operating cycles | > 1 x $10^6$ operating cycles | | | |
| • For utilization category AC-15 when switching off $I_e$/AC-15 at 240 V | | 100 000 operating cycles | 500 000 operating cycles | | | |
| **Frequency of operation** with contactors 3RH21 size S00 and 3RT contactors sizes S00, S0 | | 6 000 operating cycles/h | | | | |
| **Minimum pull-out force** for positive opening | N | 20 | 10 | | 30 | |

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## Selection and ordering data

2 or 3 contacts · 5 directions of approach · Degree of protection IP65 · Cable entry 1 × (M20 × 1.5) · With increased corrosion protection

| Version[1] | Contacts | LEDs | | Complete units<br>Article No. | PU (UNIT, SET, M)<br>Price per PU | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Enclosure width 31 mm according to EN 50047** | | | | | | | |
| <br>3SE5232-0RV40 | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5232-0RV40** | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0QV40** | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | |
| <br>3SE5232-1RV40 | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | 24 V DC | ⊖ | **3SE5232-1RV40** | 1 | 1 unit | 41K |
| | 1 NO + 1 NC | 230 V AC | ⊖ | **3SE5232-3RV40** | 1 | 1 unit | 41K |
| With increased minimum pull-out force 30 N | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5232-0QV40-1AA1** | 1 | 1 unit | 41K |
| **With M12 device plug, 4-pole (250 V, 4 A)[2]** | | | | | | | |
| <br>3SE5234-0RV40-1AC4 | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5234-0RV40-1AC4** | 1 | 1 unit | 41K |
| | 2 NC | -- | ⊖ | **3SE5234-0QV40-1AE0** | 1 | 1 unit | 41K |
| **With M12 device plug, 5-pole (125 V, 4 A)[2]** | | | | | | | |
| With pin assignment as for SIMATIC ET 200[3] | | | | | | | |
| • Slow-action contacts | 2 NC | -- | ⊖ | **3SE5234-0QV40-1AE2** | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | 24 V DC | ⊖ | **3SE5234-1RV40-1AF3** | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Supplied without actuator. Please order separately (see page 12/58).

2) For pin assignments, see page 12/12.

3) The 3SE5234-.....-1AE2 position switches, prewired with an M12 plug, 5-pole, have the same pin assignment as all fail-safe block I/O modules with a PROFINET connection in the SIMATIC ET 200eco PN and ET 200AL series with degree of protection IP65/IP67 for cabinet-free installation directly at the machine.
For more information, see page 12/88 onwards.

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## Selection and ordering data

2 or 3 contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 1 × (M20 × 1.5) · With increased corrosion protection

| Version[1] | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Enclosure width 40 mm according to EN 50041** | | | | | | | | |
| <br>3SE5132-0QV20 | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | -- | ➔ | **3SE5132-0QV20** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| <br>3SE5132-1QV20 | | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ➔ | **3SE5132-1QV20** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | 230 V AC | ➔ | **3SE5132-3QV20** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Supplied without actuator. Please order separately (see page 12/58).





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

2 or 3 contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 2 × (M20 × 1.5) · With increased corrosion protection

| | Version[1] | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Enclosure width 50 mm** | | | | | | | | | |
| 3SE5242-0QV40 | • Slow-action contacts | 1 NO + 2 NC | -- | ⊕ | **3SE5242-0QV40** | | 1 | 1 unit | 41K |
| | With increased minimum pull-out force 30 N | | | | | | | | |
| | • Slow-action contacts | 1 NO + 1 NC | -- | ⊕ | **3SE5242-0RV40-1AA1** | | 1 | 1 unit | 41K |
| | With 2 LEDs, yellow/green | | | | | | | | |
| 3SE5242-1QV40 | • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ⊕ | **3SE5242-1QV40** | | 1 | 1 unit | 41K |
| | | 1 NO + 2 NC | 230 V AC | ⊕ | **3SE5242-3QV40** | | 1 | 1 unit | 41K |

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

[1] Supplied without actuator. Please order separately (see page 12/58).

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## Selection and ordering data

2 or 3 contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 1 × (M20 × 1.5) · With increased corrosion protection

| Version[1] | Contacts | LEDs | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Enclosure width 31 mm according to EN 50047** | | | | | | | | |
| 3SE5212-1RV40 | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | -- | ➔ | **3SE5212-0RV40** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | -- | ➔ | **3SE5212-0QV40** | | 1 | 1 unit | 41K |
| With 2 LEDs, yellow/green | | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | 24 V DC | ➔ | **3SE5212-1RV40** | | 1 | 1 unit | 41K |
| | 1 NO + 1 NC | 230 V AC | ➔ | **3SE5212-3RV40** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Supplied without actuator. Please order separately (see page 12/58).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

2 or 3 contacts · 5 directions of approach · Degree of protection IP66/IP67 · With increased corrosion protection

| | Version[1] | Contacts | LEDs | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Enclosure width 40 mm according to EN 50041 · Cable entry 1 x (M20 x 1.5)** | | | | | | | | | |
| 3SE5112-0QV10 | • Slow-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5112-0QV10** | | 1 | 1 unit | 41K |
| | With increased minimum pull-out force 30 N | | | | | | | | |
| | • Slow-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5112-0QV10-1AA7** | | 1 | 1 unit | 41K |
| 3SE5112-1QV10 | With 2 LEDs, yellow/green | | | | | | | | |
| | • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ⊖ | **3SE5112-1QV10** | | 1 | 1 unit | 41K |
| | | 1 NO + 2 NC | 230 V AC | ⊖ | **3SE5112-3QV10** | | 1 | 1 unit | 41K |
| | **With M12 device plug, 5-pole (125 V, 4 A)[2]** | | | | | | | | |
| 3SE5114-0RV10-1AC5 | • Slow-action contacts | 1 NO + 1 NC | -- | ⊖ | **3SE5114-0RV10-1AC5** | | 1 | 1 unit | 41K |
| | | 2 NC | -- | ⊖ | **3SE5114-0QV10-1AE1** | | 1 | 1 unit | 41K |
| | With 2 LEDs, yellow/green | | | | | | | | |
| | • Slow-action contacts | 1 NO + 1 NC | 24 V DC | ⊖ | **3SE5114-1RV10-1AF3** | | 1 | 1 unit | 41K |
| | With pin assignment as for SIMATIC ET 200[3] | | | | | | | | |
| | • Slow-action contacts | 2 NC | -- | ⊖ | **3SE5114-0QV10-1AE3** | | 1 | 1 unit | 41K |
| | **With device plug, 6-pole + PE (250 V, 10 A)[2]** | | | | | | | | |
| | • Slow-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5115-0QV10-1AD1** | | 1 | 1 unit | 41K |
| **Enclosure width 56 mm · Cable entry 3 x (M20 x 1.5)** | | | | | | | | | |
| 3SE5122-0QV10 | • Slow-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0QV10** | | 1 | 1 unit | 41K |
| | With increased minimum pull-out force 30 N | | | | | | | | |
| | • Slow-action contacts | 1 NO + 2 NC | -- | ⊖ | **3SE5122-0QV10-1AA7** | | 1 | 1 unit | 41K |
| 3SE5122-1QV10 | With 2 LEDs, yellow/green | | | | | | | | |
| | • Slow-action contacts | 1 NO + 2 NC | 24 V DC | ⊖ | **3SE5122-1QV10** | | 1 | 1 unit | 41K |
| | | 1 NO + 2 NC | 230 V AC | ⊖ | **3SE5122-3QV10** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Supplied without actuator. Please order separately (see page 12/58).

2) For pin assignments, see page 12/12.

3) The 3SE5114-.....-1AE3 position switches, prewired with an M12 plug, 5-pole, have the same pin assignment as all fail-safe block I/O modules with a PROFINET connection in the SIMATIC ET 200eco PN and ET 200AL series with degree of protection IP65/IP67 for cabinet-free installation directly at the machine.
For more information, see page 12/88 onwards.

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## Accessories

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Actuators with degree of protection IP66/IP67 for 3SE5** | | | | | | |
| | **Standard actuators** | | | | | |
| 3SE5000-0AV01 | • Length 75.6 mm | **3SE5000-0AV01** | | 1 | 1 unit | 41K |
| 3SE5000-0AV02 | • With vertical fixing, length 53 mm | **3SE5000-0AV02** | | 1 | 1 unit | 41K |
| | • With transverse fixing | | | | | |
| 3SE5000-0AV03 | - Length 47 mm | **3SE5000-0AV03** | | 1 | 1 unit | 41K |
| 3SE5000-0AW11 | - Length 40 mm, plastic[1] | **3SE5000-0AW11** | | 1 | 1 unit | 41K |
| | **High-grade steel actuators[2]** | | | | | |
| 3SE5000-0AW51 | • Length 75.6 mm | **3SE5000-0AW51** | | 1 | 1 unit | 41K |
| 3SE5000-0AW52 | • With vertical fixing, length 53 mm | **3SE5000-0AW52** | | 1 | 1 unit | 41K |
| 3SE5000-0AW53 | • With transverse fixing, length 47 mm | **3SE5000-0AW53** | | 1 | 1 unit | 41K |
| | **Radius actuators** | | | | | |
| 3SE5000-0AV06 | • Length 51 mm | | | | | |
| | - Direction of approach from the left | **3SE5000-0AV04** | | 1 | 1 unit | 41K |
| | - Direction of approach from the right | **3SE5000-0AV06** | | 1 | 1 unit | 41K |
| | **Universal radius actuators** | | | | | |
| 3SE5000-0AV05-1AA6 | • Length 77 mm | **3SE5000-0AV05** | | 1 | 1 unit | 41K |
| | - Tab rotated 90° | **3SE5000-0AV05-1AA6** | | 1 | 1 unit | 41K |
| | **Universal radius actuators, heavy duty** | | | | | |
| 3SE5000-0AV07-1AK2 | • Length 67 mm | **3SE5000-0AV07-1AK2** | | 1 | 1 unit | 41K |
| 3SE5000-0AV07 | • Length 77 mm | **3SE5000-0AV07** | | 1 | 1 unit | 41K |
| 3SE5000-0AW57 | - High-grade steel actuators[2] | **3SE5000-0AW57** | | 1 | 1 unit | 41K |

[1] Not suitable for safety switches with tumbler.
[2] Suitable for extreme environmental conditions such as -40 °C.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Optional accessories for 3SE5** | | | | | | |
| 3SE5000-0AV08-1AA2 | **Protective caps**<br>Made of black rubber, for actuator head, to protect the actuator openings from contamination<br>(Only for enclosure width 40 mm or 56 mm) | **3SE5000-0AV08-1AA2** | | 1 | 1 unit | 41K |
| 3SE5000-0AV08-1AA3 | **Blocking inserts**<br>Made of high-grade steel, for actuator head for up to eight padlocks | **3SE5000-0AV08-1AA3** | | 1 | 1 unit | 41K |
| **Connections for 3SE5, 3SE2** | | | | | | |
| 3SY3127 | **Device plugs, M12, fixed**, **for M20 × 1.5**<br>With connecting cable 0.25 mm$^2$, plastic, degree of protection IP67 | | | | | |
| | • 4-pole, for max. 250 V, 4 A | **3SY3127** | | 1 | 1 unit | 41K |
| | • 5-pole, for max. 125 V, 4 A | **3SY3128** | | 1 | 1 unit | 41K |
| | • 5-pole[1], for max. 60 V, 4 A | **3SX5100-1SS51** | | 1 | 1 unit | 41K |
| 3SX9926 | **Connecting cable**<br>With M12 socket, 5-pole and M12 plug, 5-pole | **3SX5601-3SV15** | | 1 | 1 unit | 41K |
| | **Cable glands M20 x 1.5**<br>Plastic | **3SX9926** | | 1 | 1 unit | 41K |

[1] Suitable for wiring sensors that are connected to all fail-safe block I/O modules in the SIMATIC ET 200eco PN and ET 200AL series. For more information, see page 12/88 onwards.

For more accessories, see page 12/69.

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## 3SE2, plastic enclosures > Special width 52 mm

### Selection and ordering data

1 or 3 contacts · 3 directions of approach · Degree of protection IP67

| | Version | Operation | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Plastic enclosures in special width of 52 mm** | | | | | | | |
| <br>3SE2243 | **Lateral and front-end actuation**[1] | 6 mm stroke | | | | | |
| | • Cable entry 3 x (M20 x 1.5) | | | | | | |
| | - Slow-action contacts 1 NO + 2 NC | Holding force 5 N ➔ | **3SE2243-0XX40** | | 1 | 1 unit | 41K |
| | | Holding force 30 N ➔ | **3SE2243-0XX** | | 1 | 1 unit | 41K |
| | | With automatic ejection ➔ | **3SE2243-0XX30** | | 1 | 1 unit | 41K |
| | - Slow-action contacts 1 NC | Holding force 5 N ➔ | **3SE2257-6XX40** | | 1 | 1 unit | 41K |
| | | Holding force 30 N ➔ | **3SE2257-6XX** | | 1 | 1 unit | 41K |
| | • Cable entry 3 x (M16 x 1.5) | | | | | | |
| | - Slow-action contacts 1 NO + 2 NC | Holding force 30 N ➔ | **3SE2243-0XX18** | | 1 | 1 unit | 41K |
| **Accessories** | | | | | | | |
| | **Actuators** | | | | | | |
| <br>3SX3218 | • Standard actuators ($r_{min}$ = 150 mm), length 28 mm | | **3SX3218** | | 1 | 1 unit | 41K |
| <br>3SX3228 | • Universal radius actuator ($r_{min}$ = 45 mm), length 34 mm | | **3SX3228** | | 1 | 1 unit | 41K |
| <br>3SX3256 | • Radius actuator, adjustable radius, length 34 mm | | **3SX3256** | | 1 | 1 unit | 41K |
| <br>3SX3217 | • Ball locating, force adjustable up to max. 100 N by two adjustable screws, length 28 mm | | **3SX3217** | | 1 | 1 unit | 41K |
| <br>3SX3234 | • Actuator, length 34 mm, with dust protection and slit cover | | **3SX3234** | | 1 | 1 unit | 41K |
| <br>3SX3233 | **Slit cover (spare part)**<br>(1 set = 3 units)<br>for sealing unused operating slots for 3SE22 devices | | **3SX3233** | | 1 | 3 units | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Supplied without actuator.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

The safety switches with tumbler are exceptional safety-related devices which prevent an unforeseen or intentional opening of protective doors, protective grilles or other covers as long as a dangerous situation is present (i.e. follow-on motion of the switched-off machine).

3SE5 safety switch with tumbler

The safety switches with tumbler are comprised of a switch part with electromechanical tumbler and a mechanical actuator which has to be ordered separately.

They are rugged protective devices that enable the greatest possible safety for man and machine.

The safety switches with tumbler are offered in plastic or metal enclosures.

Dimensions (W x H x D) 54 mm x 185 mm x 43.5 mm

### *Operation*

The actuator head is included in the scope of supply.
For actuation from four directions it can be adjusted through 4 × 90°. The switches can also be approached from above.

The actuator is not included in the scope of supply of the safety switches and must be ordered separately from a choice of different versions to suit the application (see page 12/68).

Actuation data:

- Maximum actuating speed $v_{max}$ = 1.5 m/s
- Minimum actuating speed $v_{min}$ = 0.4 mm/s
- Minimum force in the direction of actuation $F_{min}$ = 30 N

The actuator is encoded. Simple overruling by hand or auxiliary devices is impossible.

Radius actuators

The safety switches with radius actuators are particularly suitable for rotary protective devices. The movable actuation key allows even small radii to be approached. Damage to the switch and the actuator due to inaccurate approach is prevented.

Locking devices

A high-grade steel blocking insert for attaching up to eight padlocks is available for even more security (see page 12/69).

Dust protection

For use in dusty environments, a protective cap made of rubber is offered that protects the actuator entries of the actuator head from contamination (see page 12/69).

### *Tumbler*

There are two versions for interlocking the actuator:

- Spring-actuated lock (closed-circuit principle) with various release mechanisms
- Solenoid-locked (open-circuit principle)

The spring-actuated lock switch is equipped with an auxiliary release for emergency situations or setup mode. Available as options:

- Escape release or
- Emergency release

### *Contact blocks*

The safety switches with tumbler have one switching block each for:

- Monitoring the actuator or the position of the protective door
- Monitoring the position of the solenoid

The mechanical design of the switch corresponds to the requirements of the fail-safe principle according to ISO 14119.

### *Optical signaling equipment*

The safety switches with tumbler are available with an optional optical signaling device.

The signaling device indicates the switch position of the interlock and the protective device optically by means of two LEDs on the front.

| Protective device | Tumbler | Display | Meaning |
|---|---|---|---|
| Closed | Released | | Actuator able to be pulled |
| Closed | Locked | | Actuator locked |
| Open | Released | | Actuator pulled |

Internal wiring:

- The yellow LED is pre-wired to the solenoid monitoring NO contact.
- The green LED is pre-wired to the actuator monitoring NC contact.
- LED ground is pre-wired to the ground of the solenoid.

Notes:

- The operational voltage must be connected to the corresponding contacts by the customer.
- This voltage for the LEDs must match the operational voltage of the solenoid (same potential).

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## General data

### Benefits

The 3SE53 safety switches provide:

- More safety through higher locking forces:
  - 1 300 N with plastic enclosure
  - 2 600 N with metal enclosure
- Various release mechanisms: lock release, escape release and emergency release
- Two contact blocks each with three contacts as standard equipment, hence fewer versions needed
- Same dimensions for all enclosure versions: plastic, metal or with integrated ASIsafe
- An extensive range of actuators
- An optional LED status display 24 V DC, 115 V or 230 V AC for all switch versions
- Devices with ASIsafe electronics integrated in the enclosure/ wired to 8-pole M12 device plug (see page 12/107)
- 3SE5322-1S.21-1AG4 series with high degree of protection IP69 according to IEC 60529, cover with foamed seal

### Application

The safety switches with tumbler are exceptional safety-related devices which prevent an unforeseen or intentional opening of protective doors, protective grilles or other covers as long as a dangerous situation is present (i.e. follow-on motion of the switched-off machine).

The safety switches with tumbler have the following functions:

- Enabling the machine or process with closed and locked protective device
- Locking the machine or process with opened protective device
- Position monitoring of the protective device and tumbler

#### *Standards*

The switches comply with IEC 60947-1 (Low-Voltage Switchgear and Controlgear, General) and IEC 60947-5-1 (Electromechanical Control Circuit Devices).

The mechanical design of the switch corresponds to the requirements of the fail-safe principle according to ISO 14119.

#### *Approvals*

The switches are approved for use with locking devices according to ISO 14119 and EN 292, Parts 1 and 2.

These switches are approved according to UL 508, UL 50 and UL 746-C.

#### *Safety circuits*

Standard IEC 60947-5-1 requires positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked according to the standard IEC 60947-5-1 with the symbol ➔.

SIL 2 according to IEC 62061/IEC 61508 or PL d according to ISO 13849-1 can be attained with a safety switch with a tumbler with ➔ if the corresponding fail-safe evaluation units are selected and correctly installed (e.g. the 3SK safety relays or matching devices from the ASIsafe, SIMATIC or SINUMERIK product ranges).

If a second 3SE5 safety switch with ➔ is used, SIL 3/PL e can be attained.

#### *Evaluation of safety functions*

Safety Evaluation in the TIA Selection Tool

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.

#### *Tumbler*

The separate actuator works like a key using coding and protects against manipulation. It transmits the locking force to the protective device and helps to monitor its position.

There are two versions of locking:

Spring-actuated lock (closed-circuit principle)

- In the standard version, the safety switch locks by means of spring force and releases by means of electromagnetic force. In the case of power failure, it reliably prevents the protective device from opening when machine parts are still moving.
- The switch is equipped with an auxiliary release for emergency situations or setup mode.
- An auxiliary release which can be secured with a lock to prevent misuse is available as a version.

Auxiliary release

Auxiliary release with lock

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The 3SE53 safety switches are also available with an escape release or emergency release.

- Personnel working inside the hazard zone can use the escape release feature to manually release the tumbler without tools from the escape side (hazardous area side) so that they can exit the hazard area. An intentional act (in this case pulling the gray actuator) is required to release the locking mechanism and restore the normal operating state.
- The emergency release enables someone in an emergency situation to manually release the tumbler without tools from the access side (outside the hazardous area). Releasing the lock and restoring the normal operating state must require effort which is comparable to repair activity: in this case disassembly of the red actuator and resetting of the mechanical lock.

Escape release from the front

Emergency release from the back

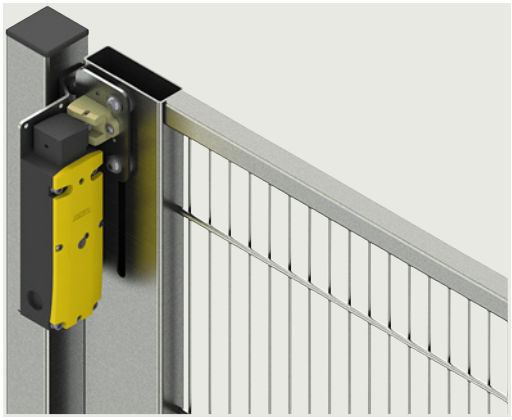
Solenoid-locked (open-circuit principle)

- The second version offers locking by means of electro-magnetic force and release by means of spring force. This version has an advantage when it is necessary to quickly access the machine after a power failure occurs, or in the case of very short coasting times.

***Examples of door interlocking***

X-Lock door interlocking from Axelent

For the addresses of the door interlock manufacturers, see page 16/18.



Door interlocking from Brühl

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## General data

### Technical specifications

| Type | | 3SE5322 | 3SE5312 |
|---|---|---|---|
| **General data** | | | |
| **Standards** | | IEC 60947-5-1, ISO 14119, IEC 62061/IEC 61508 | |
| **Rated insulation voltage $U_i$** | V | 250 | |
| **Pollution degree** according to IEC 60664-1 | | Class 3 | |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 4 | |
| **Rated operational voltage $U_e$** | | | |
| • DC | V | 24 | |
| • 50/60 Hz AC | V | 230 | |
| **Conventional thermal current $I_{th}$** | A | 6 | |
| **Rated operational current $I_e$** | | | |
| • With alternating current 50/60 Hz | | $I_e$/AC-15 or B300 | |
| - At 24 V | A | 6 | |
| - At 120 V | A | 6 | |
| - At 240 V | A | 3 | |
| • For direct current | | $I_e$/DC-13 or Q300 | |
| - At 24 V | A | 3 | |
| - At 125 V | A | 0.55 | |
| - At 250 V | A | 0.27 | |
| **Solenoid** | | | |
| • Locking force, max. | N | 1 300 | 2 600 |
| • Locking force according to ISO 14119 | N | 1 000 | 2 000 |
| • Power consumption at $U_c$ | W | 3.5 | |
| **Short-circuit protection**[1] | | | |
| • With DIAZED fuse links, operational class gG | A | 6 | |
| • With miniature circuit breaker, characteristic C | A | 0.5 | |
| **Mechanical endurance** | Operating cycles | $1 \times 10^6$ | |
| **Electrical endurance** | | | |
| • With 3RH21 contactors size S00 and 3RT contactors sizes S00, S0 | Operating cycles | $1 \times 10^6$ | |
| • For utilization category AC-15 when switching off $I_e$/AC-15 at 230 V | Operating cycles | 100 000 | |
| • With utilization category DC-12/DC-13 | | For direct current depending on the loading of the switch | |
| **Frequency of operation** with contactors 3RH21 size S00 and 3RT contactors sizes S00, S0 | Operating cycles/h | 6 000 | |
| **Shock resistance** according to IEC 60068-2-27 | g/ms | 30/11 | |

[1] Without any welds according to IEC 60947-5-1.

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## Selection and ordering data

6 slow-action contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 3 x (M20 x 1.5) · ISO 14119

| Tumbler[1] | LEDs | Solenoid, rated operational voltage | | Complete units Position monitoring: Actuators: 1 NO + 2 NC Solenoid: 1 NO + 2 NC<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **1 300 N locking force · Enclosure width 54 mm** | | | | | | | | |
| ***Spring-actuated locks*** | | | | | | | | |
| 3SE5322-0SD21 | | | | | | | | |
| • With auxiliary release | -- | 24 DC | ⊕ | **3SE5322-0SD21** | | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊕ | **3SE5322-0SD22** | | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊕ | **3SE5322-0SD23** | | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊕ | **3SE5322-1SD21** | | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊕ | **3SE5322-2SD22** | | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊕ | **3SE5322-3SD23** | | 1 | 1 unit | 41K |
| - With M12 plug, 8-pole[2], monitoring:<br>1 x door, 1 x interlocking | -- | 24 DC | ⊕ | **3SE5324-0SD21-1AE4** | | 1 | 1 unit | 41K |
| 2 x door | -- | 24 DC | ⊕ | **3SE5324-0SD21-1AE5** | | 1 | 1 unit | 41K |
| 3SE5322-0SE21 | | | | | | | | |
| • With auxiliary release with lock | -- | 24 DC | ⊕ | **3SE5322-0SE21** | | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊕ | **3SE5322-0SE22** | | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊕ | **3SE5322-0SE23** | | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊕ | **3SE5322-1SE21** | | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊕ | **3SE5322-2SE22** | | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊕ | **3SE5322-3SE23** | | 1 | 1 unit | 41K |
| 3SE5322-0SF21 | | | | | | | | |
| • With escape release from the front | -- | 24 DC | ⊕ | **3SE5322-0SF21** | | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊕ | **3SE5322-0SF22** | | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊕ | **3SE5322-0SF23** | | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊕ | **3SE5322-1SF21** | | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊕ | **3SE5322-2SF22** | | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊕ | **3SE5322-3SF23** | | 1 | 1 unit | 41K |
| • With escape release from the front and emergency release from the back | -- | 24 DC | ⊕ | **3SE5322-0SL21** | | 1 | 1 unit | 41K |
| 3SE5322-0SG21 | | | | | | | | |
| • With escape release from the back and auxiliary release from the front | -- | 24 DC | ⊕ | **3SE5322-0SG21** | | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊕ | **3SE5322-0SG22** | | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊕ | **3SE5322-0SG23** | | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊕ | **3SE5322-1SG21** | | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊕ | **3SE5322-2SG22** | | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊕ | **3SE5322-3SG23** | | 1 | 1 unit | 41K |
| • With escape release from the back and auxiliary release with lock from the front | -- | 24 DC | ⊕ | **3SE5322-0SH21** | | 1 | 1 unit | 41K |
| - With M12 plug, 8-pole[2], monitoring:<br>1 x door, 1 x interlocking | -- | 24 DC | ⊕ | **3SE5324-0SH21-1AE4** | | 1 | 1 unit | 41K |
| 3SE5324-0SH21-1AE4 | | | | | | | | |
| • With emergency release from the back and auxiliary release from the front | -- | 24 DC | ⊕ | **3SE5322-0SJ21** | | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊕ | **3SE5322-0SJ22** | | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊕ | **3SE5322-0SJ23** | | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊕ | **3SE5322-1SJ21** | | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊕ | **3SE5322-2SJ22** | | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊕ | **3SE5322-3SJ23** | | 1 | 1 unit | 41K |
| ***Solenoid-locked*** | | | | | | | | |
| 3SE5322-1SB21 | | | | | | | | |
| | -- | 24 DC | ⊕ | **3SE5322-0SB21** | | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊕ | **3SE5322-0SB22** | | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊕ | **3SE5322-0SB23** | | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊕ | **3SE5322-1SB21** | | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊕ | **3SE5322-2SB22** | | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊕ | **3SE5322-3SB23** | | 1 | 1 unit | 41K |
| • With M12 plug, 8-pole<br>- Head rotated clockwise by 90° | --<br>-- | 24 DC<br>24 DC | ⊕<br>⊕ | **3SE5324-0SB21-1AC8**<br>**3SE5324-0SB21-1AP0** | | 1<br>1 | 1 unit<br>1 unit | 41K<br>41K |

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Supplied without actuator. Please order separately (see page 12/68).

2) Suitable for connection, e.g. to fail-safe field modules of the SIMATIC ET 200eco PN and the SIMATIC ET 200AL with connection accessories 3SX5601-3SV18 and Y-cable 6ES7194-6KC00-0XA0, see page 12/69. For more information, see page 12/88 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3SE5, plastic enclosures with locking force greater than 1 200 N

6 slow-action contacts · 5 directions of approach · Degree of protection IP69 · Cable entry 3 x (M20 x 1.5) · With foamed seal and special cover

| | Tumbler[1] | LEDs | Solenoid, rated operational voltage | | Complete units Position monitoring: Actuators: 1 NO + 2 NC Solenoid: 1 NO + 2 NC | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | | V | | Article No. | | | |
| **1 300 N locking force · Enclosure width 54 mm · Degree of protection IP69** | | | | | | | | |
| | ***Spring-actuated locks*** | | | | | | | |
| 3SE5322-1SD21-1AG4 | • With auxiliary release | Yellow/green | 24 DC | ➔ | **3SE5322-1SD21-1AG4** | 1 | 1 unit | 41K |
| 3SE5322-1SE21-1AG4 | • With auxiliary release with lock | Yellow/green | 24 DC | ➔ | **3SE5322-1SE21-1AG4** | 1 | 1 unit | 41K |
| 3SE5322-1SF21-1AG4 | • With escape release from the front | Yellow/green | 24 DC | ➔ | **3SE5322-1SF21-1AG4** | 1 | 1 unit | 41K |
| 3SE5322-1SG21-1AG4 | • With escape release from the back and auxiliary release from the front | Yellow/green | 24 DC | ➔ | **3SE5322-1SG21-1AG4** | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

[1] Supplied without actuator. Please order separately (see page 12/68).

For cable gland for degree of protection IP69 and more accessories, see page 12/69.

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## Selection and ordering data

6 slow-action contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 3 x (M20 x 1.5) · ISO 14119

| Tumbler[1] | LEDs | Solenoid, rated operational voltage | | Complete units Position monitoring: Actuators: 1 NO + 2 NC Solenoid: 1 NO + 2 NC<br>Article No. | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | | V | | Price per PU | | | |
| **2 600 N locking force · Enclosure width 54 mm** | | | | | | | |
| ***Spring-actuated locks*** | | | | | | | |
| 3SE5312-0SD11 | | | | | | | |
| • With auxiliary release | -- | 24 DC | ⊖ | **3SE5312-0SD11** | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊖ | **3SE5312-0SD12** | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊖ | **3SE5312-0SD13** | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊖ | **3SE5312-1SD11** | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊖ | **3SE5312-2SD12** | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊖ | **3SE5312-3SD13** | 1 | 1 unit | 41K |
| 3SE5312-0SE11 | | | | | | | |
| • With auxiliary release with lock | -- | 24 DC | ⊖ | **3SE5312-0SE11** | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊖ | **3SE5312-0SE12** | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊖ | **3SE5312-0SE13** | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊖ | **3SE5312-1SE11** | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊖ | **3SE5312-2SE12** | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊖ | **3SE5312-3SE13** | 1 | 1 unit | 41K |
| 3SE5312-0SF11 | | | | | | | |
| • With escape release from the front | -- | 24 DC | ⊖ | **3SE5312-0SF11** | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊖ | **3SE5312-0SF12** | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊖ | **3SE5312-0SF13** | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊖ | **3SE5312-1SF11** | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊖ | **3SE5312-2SF12** | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊖ | **3SE5312-3SF13** | 1 | 1 unit | 41K |
| 3SE5312-0SG11 | | | | | | | |
| • With escape release from the back and auxiliary release from the front | -- | 24 DC | ⊖ | **3SE5312-0SG11** | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊖ | **3SE5312-0SG12** | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊖ | **3SE5312-0SG13** | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊖ | **3SE5312-1SG11** | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊖ | **3SE5312-2SG12** | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊖ | **3SE5312-3SG13** | 1 | 1 unit | 41K |
| 3SE5312-0SJ11 | | | | | | | |
| • With escape release from the back and auxiliary release with lock from the front | -- | 24 DC | ⊖ | **3SE5312-0SH11** | 1 | 1 unit | 41K |
| • With emergency release from the back and auxiliary release from the front | -- | 24 DC | ⊖ | **3SE5312-0SJ11** | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊖ | **3SE5312-0SJ12** | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊖ | **3SE5312-0SJ13** | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊖ | **3SE5312-1SJ11** | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊖ | **3SE5312-2SJ12** | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊖ | **3SE5312-3SJ13** | 1 | 1 unit | 41K |
| ***Solenoid-locked*** | | | | | | | |
| 3SE5312-0SB11 | | | | | | | |
| | -- | 24 DC | ⊖ | **3SE5312-0SB11** | 1 | 1 unit | 41K |
| | -- | 115 AC | ⊖ | **3SE5312-0SB12** | 1 | 1 unit | 41K |
| | -- | 230 AC | ⊖ | **3SE5312-0SB13** | 1 | 1 unit | 41K |
| | Yellow/green | 24 DC | ⊖ | **3SE5312-1SB11** | 1 | 1 unit | 41K |
| | Yellow/green | 115 AC | ⊖ | **3SE5312-2SB12** | 1 | 1 unit | 41K |
| | Yellow/green | 230 AC | ⊖ | **3SE5312-3SB13** | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Supplied without actuator. Please order separately (see page 12/68).

2) Suitable for connection, e.g. to fail-safe field modules of the SIMATIC ET 200eco PN and the SIMATIC ET 200AL with connection accessories 3SX5601-3SV18 and Y-cable 6ES7194-6KC00-0XA0, see page 12/69. For more information, see page 12/88 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Accessories

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Actuators with degree of protection IP66/IP67 for 3SE5** | | | | | | |
| | **Standard actuators** | | | | | |
| 3SE5000-0AV01 | • Length 75.6 mm | **3SE5000-0AV01** | | 1 | 1 unit | 41K |
| 3SE5000-0AV02 | • With vertical fixing, length 53 mm | **3SE5000-0AV02** | | 1 | 1 unit | 41K |
| 3SE5000-0AV03 | • With transverse fixing, length 47 mm | **3SE5000-0AV03** | | 1 | 1 unit | 41K |
| | **High-grade steel actuators** | | | | | |
| 3SE5000-0AW51 | • Length 75.6 mm | **3SE5000-0AW51** | | 1 | 1 unit | 41K |
| 3SE5000-0AW52 | • With vertical fixing, length 53 mm | **3SE5000-0AW52** | | 1 | 1 unit | 41K |
| 3SE5000-0AW53 | • With transverse fixing, length 47 mm | **3SE5000-0AW53** | | 1 | 1 unit | 41K |
| | **Radius actuators** | | | | | |
| 3SE5000-0AV06 | • Length 51 mm | | | | | |
| | - Direction of approach from the left | **3SE5000-0AV04** | | 1 | 1 unit | 41K |
| | - Direction of approach from the right | **3SE5000-0AV06** | | 1 | 1 unit | 41K |
| | **Universal radius actuators** | | | | | |
| 3SE5000-0AV05-1AA6 | • Length 77 mm | **3SE5000-0AV05** | | 1 | 1 unit | 41K |
| | - Tab rotated 90° | **3SE5000-0AV05-1AA6** | | 1 | 1 unit | 41K |
| | **Universal radius actuators, heavy duty** | | | | | |
| 3SE5000-0AV07-1AK2 | • Length 67 mm | **3SE5000-0AV07-1AK2** | | 1 | 1 unit | 41K |
| 3SE5000-0AV07 | • Length 77 mm | **3SE5000-0AV07** | | 1 | 1 unit | 41K |
| 3SE5000-0AW57 | - High-grade steel actuators[1)] | **3SE5000-0AW57** | | 1 | 1 unit | 41K |

[1)] Suitable for extreme environmental conditions such as -40 °C.

For further plug versions, see page 12/46.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Optional accessories for 3SE5** | | | | | | |
| 3SE5000-0AV08-1AA2 | **Protective caps**<br>Made of black rubber, for actuator head, to protect the actuator openings from contamination | **3SE5000-0AV08-1AA2** | | 1 | 1 unit | 41K |
| 3SE5000-0AV08-1AA3 | **Blocking inserts**<br>Made of high-grade steel, for actuator head for up to eight padlocks | **3SE5000-0AV08-1AA3** | | 1 | 1 unit | 41K |
| **Spare parts for 3SE5** | | | | | | |
| | **Spare keys for key type RONIS SH115** | **3SX5100-1F** | | 1 | 1 unit | 41K |
| **Connection accessories for 3SE5** | | | | | | |
| 3SX5100-1SS51 | **M12 device plugs, plastic, for M20 x 1.5** | | | | | |
| | • 4-pole, for max. 250 V, 4 A, $U_{imp}$ = 2 500 V | **3SY3127** | | 1 | 1 unit | 41K |
| | • 5-pole, for max. 125 V, 4 A, $U_{imp}$ = 1 500 V | **3SY3128** | | 1 | 1 unit | 41K |
| | • 5-pole[1], for max. 60 V, 4 A, $U_{imp}$ = 800 V | **3SX5100-1SS51** | | 1 | 1 unit | 41K |
| | • 8-pole[1], for max. 30 V, 1.5 A, $U_{imp}$ = 800 V | **3SX5100-1SS08** | | 1 | 1 unit | 41K |
| 3SX9926 | **Cable glands M20 x 1.5**<br>Plastic<br>• Degree of protection IP67 | **3SX9926** | | 1 | 1 unit | 41K |
| 3SX5601-1A | • High degree of protection IP69, IEC 60529 | **3SX5601-1A** | | 1 | 1 unit | 41K |
| 3SX5601-3SB55 | **Connecting cables**<br>With M12 socket, open end, length 5 m | | | | | |
| | • 4-pole | **3SX5601-3SB54** | | 1 | 1 unit | 41K |
| | • 5-pole | **3SX5601-3SB55** | | 1 | 1 unit | 41K |
| 3SX5601-3SV18 | **Connecting cable**<br>With M12 socket, 8-pole and M12 plug, 8-pole, length 1 m | **3SX5601-3SV18** | | 1 | 1 unit | 41K |
| 3SX5601-2GA03 | **Connecting cables**<br>With M12 socket, 8-pole, straight, open end<br>rated voltage 30 V,<br>rated current 2 A | | | | | |
| | • Length 3 m | **3SX5601-2GA03** | | 1 | 1 unit | 41K |
| | • Length 5 m | **3SX5601-2GA05** | | 1 | 1 unit | 41K |
| | • Length 10 m | **3SX5601-2GA10** | | 1 | 1 unit | 41K |
| | • Length 15 m NEW | **3SX5601-2GA15** | | 1 | 1 unit | 41K |
| 6GT2090-0BE00 | **M12 plug**<br>Straight, 8-pole | **6GT2090-0BE00** | | 1 | 5 units | 572 |
| 6ES7194-6KC00-0XA0 | **ET 200 Y-cable[1]**<br>**For connecting 1 x 2-channel sensor**<br>With M12 socket, 8-pole on 2 x M12 plugs, 5-pole, length 200 mm | **6ES7194-6KC00-0XA0** | | 1 | 1 unit | 250 |

[1] Suitable for wiring sensors that are connected to all fail-safe block I/O modules in the SIMATIC ET 200eco PN and ET 200AL series. For more information, see page 12/88 onwards.

For further plug versions, see page 12/46.

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## General data

### Overview

3SE5 hinge switches have the same enclosures as the 3SE5 position switches (modular system).

Hinge switches

#### *Design*

Enclosure sizes

The 3SE5 switches are available as complete units in two enclosure sizes:

- Plastic enclosures according to EN 50047, 31 mm wide, IP65, 1 cable entry
- Metal enclosures according to EN 50047, 31 mm wide, IP66/IP67, 1 cable entry
- Plastic and metal enclosures according to EN 50041, 40 mm wide, IP66/IP67, 1 cable entry

Enclosure versions

Various basic versions can be selected for the enclosures:

- With 2- or 3-pole contact blocks, designed as snap-action contacts
- AS-Interface version with integrated ASIsafe electronics for all enclosure designs (see page 12/111)

For a description of the basic switches, see page 12/5.

Operating mechanism

The hinge switches are provided for mounting on hinges. The actuator head is included in the scope of supply. There are two versions:

- Operating mechanism with hollow shaft, inner diameter 8 mm, outer 12 mm
- Operating mechanism with solid shaft, diameter 10 mm

#### *3SE2283 hinge switches*

The 3SE2283 hinge switches with integrated hinge are available in a special design. They are particularly suitable for use in machine doors and flaps.

### Benefits

The 3SE5 hinge switches differ from the previous series through the following new characteristics:

- All actuators can be rotated around the axis in increments of 22.5° (see figure, page 12/6).
- The new 3-pole contact block 1 NO + 2 NC is available for all enclosure sizes (see figure, page 12/6).
- The plastic enclosure with a width of 31 mm has simple and fast wiring equipment which makes it possible to save approx. 20 to 25% of the time when connecting (see figure, page 12/6).
- The ASIsafe electronics are integrated in the enclosure for the versions with AS-Interface connection (see page 12/93); an additional adapter is not required.

### Application

The hinge switches are used in those areas where the position of swiveling protective devices such as doors or flaps must be monitored. With these switches, the position of the doors and flaps is converted into electric signals. The switches allow shutdown and signaling without delay in the event of a small opening angle through the snap-action contacts with an actuating angle of 10°.

Devices are available with enclosure versions to suit the particular ambient conditions. Different control tasks can be performed with the contact blocks best suited for the particular purpose. Dimensions and fixing points of the enclosures are in accordance with EN 50041 or EN 50047 standards.

The devices are suitable for use in any climate.

#### *Standards*

The switches comply with IEC 60947-5-1 (Electromechanical Control Circuit Devices).

The protective measure of "total insulation" by the plastic enclosure is ensured by the use of plastic screw glands.

#### *Safety position switches*

For controls according to IEC 60204-1 the devices can be used as a safety position switch. To secure position switches against changes in their position, positively-driven techniques must be employed on installation.

#### *Safety circuits*

Standard IEC 60947-5-1 requires positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked according to IEC 60947-5-1 with the symbol ⊖.

SIL 2 according to IEC 62061/IEC 61508 or PL d according to ISO 13849-1 can be attained with a 3SE5 safety hinge switch with ⊖ if the corresponding fail-safe evaluation units are selected and correctly installed (e.g. the 3SK safety relays or matching devices from the ASIsafe, SIMATIC or SINUMERIK product ranges).

If a second 3SE5 position switch with ⊖ is used, SIL 3/PL e can be attained.

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***Evaluation of safety functions***

Safety Evaluation in the TIA Selection Tool

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.

## Technical specifications

The technical specifications are the same as for the standard switches (see page 12/11).

## Selection and ordering data

***Complete units***

2 or 3 contacts · Degree of protection IP65 (31 mm) or IP66/IP67 (40 mm) · Cable entry 1 x (M20 × 1.5)

| | Version | Snap-action contacts | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Enclosure width 31 mm according to EN 50047** | | | | | | | |
| 3SE5232-0HU21 | **With hollow shaft** | | | | | | |
| | • Actuating angle 10° | 1 NO + 1 NC[1] ⊖<br>1 NO + 2 NC ⊖ | **3SE5232-0HU21**<br>**3SE5232-0LU21** | | 1<br>1 | 1 unit<br>1 unit | 41K<br>41K |
| 3SE5232-0HU22 | **With solid shaft** | | | | | | |
| | • Actuating angle 10° | 1 NO + 1 NC[1] ⊖<br>1 NO + 2 NC ⊖ | **3SE5232-0HU22**<br>**3SE5232-0LU22** | | 1<br>1 | 1 unit<br>1 unit | 41K<br>41K |
| **Enclosure width 40 mm according to EN 50041** | | | | | | | |
| 3SE5132-0LU21 | **With hollow shaft** | | | | | | |
| | • Actuating angle 10° | 1 NO + 2 NC ⊖ | **3SE5132-0LU21** | | 1 | 1 unit | 41K |
| 3SE5132-0LU22 | **With solid shaft** | | | | | | |
| | • Actuating angle 10° | 1 NO + 2 NC ⊖ | **3SE5132-0LU22** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

[1] Contact blocks permanently integrated, replacement not available.

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## 3SE5, plastic enclosures > Enclosure width 31 mm according to EN 50047/40 mm according to EN 50041

***Spare parts***

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Actuator heads** | | | | | | |
| 3SE5000-0AU21 | **With hollow shaft**<br>• Actuating angle 10° | **3SE5000-0AU21** | | 1 | 1 unit | 41K |
| 3SE5000-0AU22 | **With solid shaft**<br>• Actuating angle 10° | **3SE5000-0AU22** | | 1 | 1 unit | 41K |

Note:
The respective actuators are included in the scope of supply for the complete units.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

### *Complete units*

3 contacts · Degree of protection IP66/IP67 · Cable entry 1 x (M20 x 1.5)

| | Version | Snap-action contacts | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Enclosure width 31 mm according to EN 50047** | | | | | | | | |
| <br>3SE5212-0LU21 | **With hollow shaft**<br>• Actuating angle 10° | 1 NO + 2 NC | ⊖ | **3SE5212-0LU21** | | 1 | 1 unit | 41K |
| <br>3SE5212-0LU22 | **With solid shaft**<br>• Actuating angle 10° | 1 NO + 2 NC | ⊖ | **3SE5212-0LU22** | | 1 | 1 unit | 41K |
| **Enclosure width 40 mm according to EN 50041** | | | | | | | | |
| <br>3SE5112-0LU21 | **With hollow shaft**<br>• Actuating angle 10° | 1 NO + 2 NC | ⊖ | **3SE5112-0LU21** | | 1 | 1 unit | 41K |
| <br>3SE5112-0LU22 | **With solid shaft**<br>• Actuating angle 10° | 1 NO + 2 NC | ⊖ | **3SE5112-0LU22** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

### *Spare parts*

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Actuator heads** | | | | | | |
| <br>3SE5000-0AU21 | **With hollow shaft**<br>• Actuating angle 10° | **3SE5000-0AU21** | | 1 | 1 unit | 41K |
| <br>3SE5000-0AU22 | **With solid shaft**<br>• Actuating angle 10° | **3SE5000-0AU22** | | 1 | 1 unit | 41K |

Note:
The respective actuators are included in the scope of supply for the complete units.

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## Overview

The 3SE2283 hinge switches with integrated hinge are particularly suitable for use in doors and flaps of machines that must be closed to ensure the safety of operating personnel. Their thin profile and the compact design allow them to be directly mounted on a hinged protective cover and the stable frame.

## Benefits

- Easy mounting through use of versions with integrated hinge
- Versions with small actuating angle of 4° or 8°
- Protection against personal injury provided by positively driven NC contacts according to IEC 60947-5-1
- Simultaneous shutdown and signaling by 1 NO + 2 NC contacts

## Technical specifications

| Type | | 3SE2283 |
|---|---|---|
| **Rated insulation voltage $U_i$** | V | 250 |
| **Conventional thermal current $I_{th}$** | A | 2.5 |
| **Rated operational current $I_e$** | | |
| • At AC-15, 120 V | A | 4.2 |
| • At AC-15, 250 V | A | 2 |
| • At DC-13, 24 V | A | 1 |
| **Min. make-break capacity** | | > 5 V/1 mA |
| **Short-circuit protection** | | |
| • Operational class gG | A | 2 |
| **Mechanical endurance** | | > 1 x $10^6$ operating cycles |
| **Frequency of operation** | | 1 200 operating cycles/h |
| **Positive opening** | | 2 mm after opening point |
| **Enclosure material** | | Plastic |
| **Degree of protection** | | IP65 |
| **Ambient temperature** | °C | -25 ... +65 |
| **Shock resistance** | | 30 *g*/8 ms |
| **Resistance to vibrations** | | 20 *g*/0 ... 200 Hz |
| **Cable entry** | | 2 x (M20 x 1.5) |
| **Screw terminals** | | 0.5 ... 1.5 $mm^2$/AWG 15 |

## Selection and ordering data

3 contacts · Degree of protection IP65 · Cable entry 2 x (M20 x 1.5)

| Version | Slow-action contacts | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **With integrated hinge** | | | | | | | |
| 3SE2283 | Scope of supply includes additional hinge and fixing accessories | | | | | | |
| • Aluminum hinge | | | | | | | |
| - 4° actuating angle | 1 NO + 2 NC | ➔ | **3SE2283-0GA43** | | 1 | 1 unit | 41K |
| | 3 NC | ➔ | **3SE2283-6GA43** | | 1 | 1 unit | 41K |
| - 8° actuating angle | 1 NO + 2 NC | ➔ | **3SE2283-0GA53** | | 1 | 1 unit | 41K |
| | 3 NC | ➔ | **3SE2283-6GA53** | | 1 | 1 unit | 41K |
| • High-grade steel hinge | | | | | | | |
| - 4° actuating angle | 1 NO + 2 NC | ➔ | **3SE2283-0GA44** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Accessories** | | | | | |
| 3SX3225 | **Additional hinge** (Scope of supply includes fixing accessories) | | | | |
| • Made of aluminum | **3SX3225** | | 1 | 1 unit | 41K |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

### *Enclosure width 31 mm according to EN 50047*

Complete units

2 or 3 contacts · Degree of protection IP65 · Cable entry 1 × (M20 × 1.5) · With increased corrosion protection

| | Version | Contacts | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 31 mm** | | | | | | | | |
| <br>3SE5232-0LK21-1AY0 | ***Twist levers, 21 mm long, type A, according to EN 50047***<br>**With plastic roller 19 mm**<br>• Snap-action contacts | 1 NO +<br>2 NC | ⊕ | **3SE5232-0LK21-1AY0** | | 1 | 1 unit | 41K |
| <br>3SE5232-0LE10-1AY0 | ***Roller levers, type E, according to EN 50047***<br>**With plastic roller 13 mm**<br>• Snap-action contacts | 1 NO +<br>2 NC | ⊕ | **3SE5232-0LE10-1AY0** | | 1 | 1 unit | 41K |
| <br>3SE5232-0HK82-1AY0 | ***Rod actuators, according to EN 50047***<br>**With plastic rod, length 200 mm**<br>• Snap-action contacts | 1 NO +<br>1 NC | | **3SE5232-0HK82-1AY0** | | 1 | 1 unit | 41K |
| <br>3SE5232-0HR01-1AY0 | ***Spring rods[2], according to EN 50047***<br>**Length 142.5 mm, with plastic plunger 50 mm**<br>• Snap-action contacts | 1 NO +<br>1 NC | | **3SE5232-0HR01-1AY0** | | 1 | 1 unit | 41K |

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) Degree of protection IP65/IP67.

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## Selection and ordering data

***Enclosure width 54 mm***

6 slow-action contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 3 x (M20 x 1.5) · ISO 14119

| | Tumbler[1] | Solenoid, rated operational voltage | | Complete units Position monitoring: Actuators: 1 NO + 2 NC Solenoid: 1 NO + 2 NC<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **1 300 N locking force · Enclosure width 54 mm** | | | | | | | | |
| 3SE5322-0SD21-1AY0 | ***Spring-actuated locks*** | | | | | | | |
| | • With front auxiliary release | 24 DC | ⊖ | **3SE5322-0SD21-1AY0** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Supplied without actuator. Please order separately.

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Accessories** | | | | | | |
| 3SE5000-0AV01 | **Standard actuators**<br>• Length 75.6 mm | **3SE5000-0AV01** | | 1 | 1 unit | 41K |
| | **High-grade steel actuators, standard[1]** | | | | | |
| 3SE5000-0AW51 | • Length 75.6 mm | **3SE5000-0AW51** | | 1 | 1 unit | 41K |
| 3SE5000-0AW52 | • With vertical fixing, length 53 mm | **3SE5000-0AW52** | | 1 | 1 unit | 41K |
| 3SE5000-0AW53 | • With transverse fixing, length 47 mm | **3SE5000-0AW53** | | 1 | 1 unit | 41K |
| | **Universal radius actuators, heavy duty** | | | | | |
| 3SE5000-0AW57 | • High-grade steel actuators[1], length 77 mm | **3SE5000-0AW57** | | 1 | 1 unit | 41K |

1) Suitable for extreme environmental conditions such as -40 °C.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

***Enclosure width 31 mm according to EN 50047***

2 contacts · Degree of protection IP65 · Cable entry 1 × (M20 × 1.5) · With increased corrosion protection

| Version | Contacts | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Complete units · Enclosure width 31 mm** | | | | | | | |
| <br>3SE5232-0HU21-1AY0 | | | | | | | |
| ***Hinge switches, according to EN 50047*** | | | | | | | |
| **With hollow shaft D = 8 mm, actuating angle 10°** | | | | | | | |
| • Snap-action contacts | 1 NO +<br>1 NC | ⊖ | **3SE5232-0HU21-1AY0** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K.

12

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## Selection and ordering data

***Enclosure width 31 mm according to EN 50047/50 mm***

Complete units

2 or 3 contacts · Degree of protection IP65 (31 mm) or IP66/IP67 (50 mm) · With increased corrosion protection

| Version | Contacts | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Complete units[1] · Enclosure width 31 mm · Cable entry 1 x (M20 x 1.5)** | | | | | | | |
| 3SE5234-0CD03-1AJ1 | | | | | | | |
| ***Roller plungers, type C, according to EN 50047*** | | | | | | | |
| **With plastic roller 10 mm** | | | | | | | |
| With M12 device plug, 4-pole (250 V, 4 A)[2] | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5234-0CD03-1AJ1** | | 1 | 1 unit | 41K |
| 3SE5232-0CD10-1AJ0 | | | | | | | |
| ***Roller plungers with central fixing, according to EN 50047*** | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5232-0CD10-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5232-0CK31-1AJ0 | | | | | | | |
| ***Twist levers, type A, according to EN 50047*** | | | | | | | |
| **With high-grade steel lever 21 mm and plastic roller 19 mm** | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5232-0CK31-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5232-0CK62-1AJ0 | | | | | | | |
| ***Twist levers, adjustable length, according to EN 50047*** | | | | | | | |
| **With high-grade steel lever 100 mm, with grid hole and plastic roller 19 mm** | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5232-0CK62-1AJ0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | ⊖ | **3SE5232-0LK62-1AJ0** | | 1 | 1 unit | 41K |
| **Complete units[1] · Enclosure width 50 mm · Cable entry 2 x (M20 x 1.5) · Operating points according to EN 50047** | | | | | | | |
| 3SE5242-0HK21-1AJ0 | | | | | | | |
| ***Twist levers*** | | | | | | | |
| **With metal lever 21 mm and plastic roller 19 mm** | | | | | | | |
| • Snap-action contacts, integrated[3] | 1 NO + 1 NC | ⊖ | **3SE5242-0HK21-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5242-0HK62-1AJ0 | | | | | | | |
| ***Twist levers, adjustable length*** | | | | | | | |
| **With high-grade steel lever 100 mm, with grid hole and plastic roller 19 mm** | | | | | | | |
| • Snap-action contacts, integrated[3] | 1 NO + 1 NC | ⊖ | **3SE5242-0HK62-1AJ0** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Popular versions.

2) For pin assignments, see page 12/12.

3) Subsequent replacement of contact blocks is not possible.

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/79.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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Modular system

2 or 3 contacts · Degree of protection IP65 (31 mm) or IP66/IP67 (50 mm) · With increased corrosion protection

| Version | Contacts | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 31 mm · Cable entry 1 x (M20 x 1.5)** | | | | | | | |
| ***Rounded plungers[1], type B, according to EN 50047*** | | | | | | | |
| 3SE5232-0CC05-1AJ0 | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | ⊖ | **3SE5232-0KC05-1AJ0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5232-0CC05-1AJ0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | ⊖ | **3SE5232-0LC05-1AJ0** | | 1 | 1 unit | 41K |
| **Basic switches · Enclosure width 50 mm · Cable entry 2 x (M20 x 1.5)** | | | | | | | |
| ***Rounded plungers[1], according to EN 50047*** | | | | | | | |
| 3SE5242-0BC05-1AJ0 | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | ⊖ | **3SE5242-0BC05-1AJ0** | | 1 | 1 unit | 41K |
| • Snap-action contacts, integrated[2] | 1 NO + 1 NC | ⊖ | **3SE5242-0HC05-1AJ0** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) For enclosures with widths of 31 and 50 mm, the basic switch is a complete unit with rounded plungers.

2) Subsequent replacement of contact blocks is not possible.

Note:

For the selection aid, see page 12/13.

| Version | Diameter<br>mm | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Operating mechanisms** | | | | | | | |
| **Roller plungers, type C, according to EN 50047** | | | | | | | |
| 3SE5000-0AD03-1AJ0 | | | | | | | |
| • Plastic roller | 10 | ⊖ | **3SE5000-0AD03-1AJ0** | | 1 | 1 unit | 41K |
| **Roller levers, type E, according to EN 50047** | | | | | | | |
| • Metal lever, Plastic roller | 13 | ⊖ | **3SE5000-0AE10-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 13 | ⊖ | **3SE5000-0AE12-1AJ0** | | 1 | 1 unit | 41K |
| High-grade steel roller | 13 | ⊖ | **3SE5000-0AE13-1AJ0** | | 1 | 1 unit | 41K |
| **Angular roller levers** | | | | | | | |
| 3SE5000-0AF10-1AJ0 | | | | | | | |
| • Metal lever, Plastic roller | 13 | ⊖ | **3SE5000-0AF10-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 13 | ⊖ | **3SE5000-0AF12-1AJ0** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | |
| **Twist actuators, for 31/50 mm, according to EN 50047** | | | | | | | |
| 3SE5000-0AK00-1AJ0 | | | | | | | |
| • Switching right and/or left, adjustable | -- | ⊖ | **3SE5000-0AK00-1AJ0** | | 1 | 1 unit | 41K |
| ***Levers*** | | | | | | | |
| **Twist levers 21 mm, straight, type A, according to EN 50047** | | | | | | | |
| 3SE5000-0AA21-1AJ0 | | | | | | | |
| • Metal lever, Plastic roller | 19 | ⊖ | **3SE5000-0AA21-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 19 | ⊖ | **3SE5000-0AA31-1AJ0** | | 1 | 1 unit | 41K |
| High-grade steel roller | 19 | ⊖ | **3SE5000-0AA32-1AJ0** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | |
| 3SE5000-0AA60-1AJ0 | | | | | | | |
| • Metal lever, Plastic roller | 19 | ⊖ | **3SE5000-0AA60-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 19 | ⊖ | **3SE5000-0AA62-1AJ0** | | 1 | 1 unit | 41K |

⊖ Positively driven actuator, necessary in safety circuits.

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***Enclosure width 40 mm according to EN 50041***

Modular system

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 × (M20 × 1.5) · With increased corrosion protection

| Version | Contacts | | Modular system ◇ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 40 mm** | | | | | | | |
| ***Rounded plungers, according to EN 50041*** | | | | | | | |
| 3SE5132-0CA00-1AJ0 | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | ➔ | **3SE5132-0KA00-1AJ0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | ➔ | **3SE5132-0CA00-1AJ0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | ➔ | **3SE5132-0LA00-1AJ0** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

Note:
For the selection aid, see page 12/13.

| Version | | Diameter mm | | Modular system ◇ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Operating mechanisms** | | | | | | | | |
| **Rounded plungers, type B, according to EN 50041** | | | | | | | | |
| 3SE5000-0AC03-1AJ0 | | | | | | | | |
| • Plastic plunger, with 3 mm overtravel | | 10 | ➔ | **3SE5000-0AC03-1AJ0** | | 1 | 1 unit | 41K |
| **Roller plungers, type C, according to EN 50041** | | | | | | | | |
| 3SE5000-0AD05-1AJ0 | | | | | | | | |
| • Plastic plungers | Plastic roller | 13 | ➔ | **3SE5000-0AD05-1AJ0** | | 1 | 1 unit | 41K |
| **Roller levers** | | | | | | | | |
| 3SE5000-0AE05-1AJ0 | | | | | | | | |
| • Metal levers with plastic base | Plastic roller | 22 | ➔ | **3SE5000-0AE05-1AJ0** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | | |
| **Twist actuators, for 40/56/56 mm, XL, according to EN 50041** | | | | | | | | |
| 3SE5000-0AH00-1AJ0 | | | | | | | | |
| • Switching right and/or left, adjustable | | -- | ➔ | **3SE5000-0AH00-1AJ0** | | 1 | 1 unit | 41K |
| ***Levers*** | | | | | | | | |
| **Twist levers 27 mm, offset, type A, according to EN 50041** | | | | | | | | |
| 3SE5000-0AA01-1AJ0 | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA01-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA11-1AJ0** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | | |
| 3SE5000-0AA60-1AJ0 | | | | | | | | |
| • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA60-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA62-1AJ0** | | 1 | 1 unit | 41K |

➔ Positively driven actuator, necessary in safety circuits.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

***Enclosure width 31 mm according to EN 50047***

Complete units

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 × (M20 × 1.5) · With increased corrosion protection

| Version | Contacts | | Modular system ◇ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Complete units · Enclosure width 31 mm** | | | | | | | |
| ***Rounded plungers, type B, according to EN 50047*** | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | ⊖ | **3SE5212-0KC05-1AJ0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5212-0CC05-1AJ0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | ⊖ | **3SE5212-0LC05-1AJ0** | | 1 | 1 unit | 41K |
| **With M12 device plug, 5-pole (250 V, 4 A)[1)]** | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5214-0CC05-1AJ2** | | 1 | 1 unit | 41K |
| ***Twist levers, type A, according to EN 50047*** | | | | | | | |
| **With metal lever 21 mm and high-grade steel roller 19 mm, with twist lever operating mechanism with enclosure width 40 mm** | | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5212-0CH22-1AJ0** | | 1 | 1 unit | 41K |

3SE5212-0CC05-1AJ0

3SE5214-0CC05-1AJ2

3SE5212-0CH22-1AJ0

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) For pin assignments, see page 12/12.

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/82.

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Modular system

2 or 3 contacts · Degree of protection IP66/IP67 · Cable entry 1 × (M20 × 1.5) · With increased corrosion protection

| Version | Contacts | | Modular system ◇ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 31 mm** | | | | | | | |
| ***Rounded plungers[1], according to EN 50047*** | | | | | | | |
| 3SE5212-0CC05-1AJ0 | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | ⊖ | **3SE5212-0KC05-1AJ0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | ⊖ | **3SE5212-0CC05-1AJ0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | ⊖ | **3SE5212-0LC05-1AJ0** | | 1 | 1 unit | 41K |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) For enclosures with widths of 31 mm, the basic switch is a complete unit with rounded plungers.

Note:

For the selection aid, see page 12/13.

| Version | Diameter | | Modular system ◇ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | mm | | | | | | |
| **Operating mechanisms** | | | | | | | |
| **Roller plungers, type C, according to EN 50047** | | | | | | | |
| 3SE5000-0AD03-1AJ0 | | | | | | | |
| • Plastic roller | 10 | ⊖ | **3SE5000-0AD03-1AJ0** | | 1 | 1 unit | 41K |
| **Roller levers, type E, according to EN 50047** | | | | | | | |
| 3SE5000-0AE10-1AJ0 | | | | | | | |
| • Metal lever, Plastic roller | 13 | ⊖ | **3SE5000-0AE10-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 13 | ⊖ | **3SE5000-0AE12-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever, High-grade steel roller | 13 | ⊖ | **3SE5000-0AE13-1AJ0** | | 1 | 1 unit | 41K |
| **Angular roller levers** | | | | | | | |
| 3SE5000-0AF10-1AJ0 | | | | | | | |
| • Metal lever, Plastic roller | 13 | ⊖ | **3SE5000-0AF10-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 13 | ⊖ | **3SE5000-0AF12-1AJ0** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | |
| **Twist actuators, for 31/50 mm, according to EN 50047** | | | | | | | |
| 3SE5000-0AK00-1AJ0 | | | | | | | |
| • Switching right and/or left, adjustable | -- | ⊖ | **3SE5000-0AK00-1AJ0** | | 1 | 1 unit | 41K |
| ***Levers*** | | | | | | | |
| **Twist levers 21 mm, straight, type A, according to EN 50047** | | | | | | | |
| 3SE5000-0AA21-1AJ0 | | | | | | | |
| • Metal lever, Plastic roller | 19 | ⊖ | **3SE5000-0AA21-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 19 | ⊖ | **3SE5000-0AA31-1AJ0** | | 1 | 1 unit | 41K |
| **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | |
| 3SE5000-0AA60-1AJ0 | | | | | | | |
| • Metal lever, Plastic roller | 19 | ⊖ | **3SE5000-0AA60-1AJ0** | | 1 | 1 unit | 41K |
| • High-grade steel lever, Plastic roller | 19 | ⊖ | **3SE5000-0AA62-1AJ0** | | 1 | 1 unit | 41K |

⊖ Positively driven actuator, necessary in safety circuits.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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***Enclosure width 40 mm according to EN 50041/56 mm, XL***

Complete units

2, 3 or 4 contacts · Degree of protection IP66/IP67 · With increased corrosion protection

| Version | Contacts | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Complete units · Enclosure width 40 mm · Cable entry 1 x (M20 x 1.5)** | | | | | | |
| 3SE5112-0CC02-1AJ0 | | | | | | |
| ***Rounded plungers, type B, according to EN 50041*** | | | | | | |
| **With high-grade steel plunger 10 mm, with 3 mm overtravel** | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC ➔ | **3SE5112-0CC02-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5112-0LD02-1AJ0 | | | | | | |
| ***Roller plungers, type C, according to EN 50041*** | | | | | | |
| **With high-grade steel plunger 13 mm, with 3 mm overtravel** | | | | | | |
| • Snap-action contacts | 1 NO + 2 NC ➔ | **3SE5112-0LD02-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5112-0LH11-1AJ0 | | | | | | |
| ***Twist levers, type A, according to EN 50041*** | | | | | | |
| **With high-grade steel lever 27 mm and plastic roller 19 mm** | | | | | | |
| • Snap-action contacts | 1 NO + 2 NC ➔ | **3SE5112-0LH11-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5112-0CH62-1AJ0 | | | | | | |
| ***Twist levers, adjustable length, according to EN 50041*** | | | | | | |
| **With high-grade steel lever 100 mm, with grid hole and plastic roller 19 mm** | | | | | | |
| • Snap-action contacts | 1 NO + 1 NC ➔ | **3SE5112-0CH62-1AJ0** | | 1 | 1 unit | 41K |
| **Complete units · Enclosure width 56 mm, XL · Cable entry 3 x (M20 x 1.5) · Operating points according to EN 50041** | | | | | | |
| 3SE5162-0CH12-1AN5 | | | | | | |
| ***Twist levers*** | | | | | | |
| **With high-grade steel lever 27 mm and high-grade steel roller 19 mm** | | | | | | |
| • Snap-action contacts | 2 × (1 NO + 1 NC) ➔ | **3SE5162-0CH12-1AN5** | | 1 | 1 unit | 41K |
| 3SE5162-0CH60-1AJ0 | | | | | | |
| ***Twist levers, adjustable length*** | | | | | | |
| **With metal lever 100 mm, with grid holes and plastic roller 19 mm** | | | | | | |
| • Snap-action contacts | 2 × (1 NO + 1 NC) ➔ | **3SE5162-0CH60-1AJ0** | | 1 | 1 unit | 41K |
| **With high-grade steel lever 100 mm and high-grade steel roller 19 mm** | | | | | | |
| • Snap-action contacts | 2 × (1 NO + 1 NC) ➔ | **3SE5162-0CH63-1AN6** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K or positively driven actuator, necessary in safety circuits.

Note:

If the device you require is not available as a complete unit, see "Modular system", page 12/84.

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***Enclosure width 40 mm according to EN 50041/56 mm/56 mm, XL***

Modular system

2, 3 or 4 contacts · Degree of protection IP66/IP67 · With increased corrosion protection

| Version | Contacts | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 40 mm · Cable entry 1 x (M20 x 1.5)** | | | | | | | |
| ***Rounded plungers, according to EN 50041*** | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | ➔ | **3SE5112-0KA00-1AJ0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | ➔ | **3SE5112-0CA00-1AJ0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | ➔ | **3SE5112-0LA00-1AJ0** | | 1 | 1 unit | 41K |
| **Basic switches · Enclosure width 56 mm · Cable entry 3 x (M20 x 1.5)** | | | | | | | |
| ***Rounded plungers, operating points according to EN 50041*** | | | | | | | |
| • Slow-action contacts | 1 NO + 2 NC | ➔ | **3SE5122-0KA00-1AJ0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 1 NO + 1 NC | ➔ | **3SE5122-0CA00-1AJ0** | | 1 | 1 unit | 41K |
| | 1 NO + 2 NC | ➔ | **3SE5122-0LA00-1AJ0** | | 1 | 1 unit | 41K |
| **Basic switches · Enclosure width 56 mm, XL · Cable entry 3 x (M20 x 1.5)** | | | | | | | |
| ***Rounded plungers, operating points according to EN 50041*** | | | | | | | |
| • Slow-action contacts | 2 × (1 NO + 1 NC) | ➔ | **3SE5162-0BA00-1AJ0** | | 1 | 1 unit | 41K |
| • Snap-action contacts | 2 × (1 NO + 1 NC) | ➔ | **3SE5162-0CA00-1AJ0** | | 1 | 1 unit | 41K |

3SE5112-0CA00-1AJ0

3SE5122-0CA00-1AJ0

3SE5162-0BA00-1AJ0

➔ Positive opening according to IEC 60947-5-1, Annex K or positively driven actuator, necessary in safety circuits.

Note:

For the selection aid, see page 12/13.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| | Version | | Diameter mm | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Operating mechanisms** | | | | | | | | | |
| 3SE5000-0AC02-1AJ0 | **Rounded plungers, type B, according to EN 50041** | | | | | | | | |
| | • High-grade steel plunger, with 3 mm overtravel | | 10 | ➔ | **3SE5000-0AC02-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5000-0AD02-1AJ0 | **Roller plungers, type C, according to EN 50041** | | | | | | | | |
| | • High-grade steel roller, with 3 mm overtravel | | 10 | ➔ | **3SE5000-0AD02-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5000-0AE01-1AJ0 | **Roller levers** | | | | | | | | |
| | • Metal lever | Plastic roller | 13 | ➔ | **3SE5000-0AE01-1AJ0** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 13 | ➔ | **3SE5000-0AE03-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5000-0AF01-1AJ0 | **Angular roller levers** | | | | | | | | |
| | • Metal lever | Plastic roller | 13 | ➔ | **3SE5000-0AF01-1AJ0** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 13 | ➔ | **3SE5000-0AF03-1AJ0** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | | | |
| 3SE5000-0AH00-1AJ0 | **Twist actuators, for 40/56/56 mm, XL, according to EN 50041** | | | | | | | | |
| | • Switching right and/or left, adjustable | | -- | ➔ | **3SE5000-0AH00-1AJ0** | | 1 | 1 unit | 41K |
| | ***Levers*** | | | | | | | | |
| 3SE5000-0AA01-1AJ0 | **Twist levers 27 mm, offset, type A, according to EN 50041** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA01-1AJ0** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA11-1AJ0** | | 1 | 1 unit | 41K |
| 3SE5000-0AA60-1AJ0 | **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA60-1AJ0** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA62-1AJ0** | | 1 | 1 unit | 41K |

➔ Positively driven actuator, necessary in safety circuits.

12

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## Selection and ordering data

***Enclosure width 31 mm according to EN 50047***

Complete units

2 contacts · 5 directions of approach · Degree of protection IP65 · Cable entry 1 × (M20 × 1.5) · With increased corrosion protection

| Version | Contacts | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Plastic enclosures · Enclosure width 31 mm according to EN 50047** | | | | | | | |
| 3SE5232-0RV40-1AJ0 | | | | | | | |
| • Slow-action contacts | 1 NO + 1 NC | ➔ | **3SE5232-0RV40-1AJ0** | | 1 | 1 unit | 41K |
| **Metal enclosures · Enclosure width 40 mm according to EN 50041** | | | | | | | |
| 3SE5114-0QV40-1AJ4 | | | | | | | |
| **With M12 device plug, 5-pole (125 V, 4 A)[1]** | | | | | | | |
| • Slow-action contacts | 2 NC | ➔ | **3SE5114-0QV10-1AJ4** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K.

1) For pin assignments, see page 12/12.

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Accessories** | | | | | |
| 3SE5000-0AW11 | | | | | |
| **Standard actuators** | | | | | |
| • With transverse fixing, plastic, length 40 mm | **3SE5000-0AW11** | | 1 | 1 unit | 41K |
| **High-grade steel actuators[1]** | | | | | |
| 3SE5000-0AW51 | | | | | |
| • Length 75.6 mm | **3SE5000-0AW51** | | 1 | 1 unit | 41K |
| 3SE5000-0AW52 | | | | | |
| • With vertical fixing, length 53 mm | **3SE5000-0AW52** | | 1 | 1 unit | 41K |
| 3SE5000-0AW53 | | | | | |
| • With transverse fixing, length 47 mm | **3SE5000-0AW53** | | 1 | 1 unit | 41K |
| **Universal radius actuators, heavy duty** | | | | | |
| 3SE5000-0AW57 | | | | | |
| • High-grade steel actuators[1], length 77 mm | **3SE5000-0AW57** | | 1 | 1 unit | 41K |

1) Suitable for extreme environmental conditions such as -40 °C.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

### *Enclosure width 54 mm*

6 slow-action contacts · 5 directions of approach · Degree of protection IP66/IP67 · Cable entry 3 x (M20 x 1.5)

| | Tumbler[1] | Solenoid, rated operational voltage | | Complete units<br>Position monitoring:<br>Actuators: 1 NO + 2 NC<br>Solenoid: 1 NO + 2 NC<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **1 300 N locking force · Enclosure width 54 mm according to ISO 14119** | | | | | | | | |
| 3SE5322-0SL21-1AJ0 | **Spring-actuated locks** | | | | | | | |
| | • With escape release from the front and emergency release from the back | 24 DC | ➔ | **3SE5322-0SL21-1AJ0** | | 1 | 1 unit | 41K |
| | • With auxiliary release | | | **3SE5322-0SD21-1AJ0** | | 1 | 1 unit | 41K |
| | • With escape release from the back and auxiliary release from the front, head rotated 180° | | | **3SE5322-0SG21-1AM5** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

1) Supplied without actuator. Please order separately.

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Accessories** | | | | | | |
| 3SE5000-0AV01 | **Standard actuators** | | | | | |
| | • Length 75.6 mm | **3SE5000-0AV01** | | 1 | 1 unit | 41K |
| | **High-grade steel actuators[1]** | | | | | |
| 3SE5000-0AW51 | • Length 75.6 mm | **3SE5000-0AW51** | | 1 | 1 unit | 41K |
| 3SE5000-0AW52 | • With vertical fixing, length 53 mm | **3SE5000-0AW52** | | 1 | 1 unit | 41K |
| 3SE5000-0AW53 | • With transverse fixing, length 47 mm | **3SE5000-0AW53** | | 1 | 1 unit | 41K |
| 3SE5000-0AW57 | **Universal radius actuators, heavy duty** | | | | | |
| | • High-grade steel actuators[1], length 77 mm | **3SE5000-0AW57** | | 1 | 1 unit | 41K |

1) Suitable for extreme environmental conditions such as -40 °C.

12

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## Safety cabling in the field with IP67

### Overview

***SIRIUS sensors and SIMATIC ET 200***

The new system comprising SIRIUS sensors and fail-safe SIMATIC ET 200 provides a safe M12 connection method for industry.

The SIRIUS sensors can be connected in the field via the fail-safe field modules of the SIMATIC ET 200eco PN and SIMATIC ET 200AL.

The signals are forwarded to the higher-level controller via PROFINET/PROFIsafe either by means of a direct connection of the SIMATIC ET 200eco PN or, in the case of SIMATIC ET 200AL, via an interface module.

Configurator, see www.siemens.com/SIMATIC-ET200-safety-sensor-configurator.

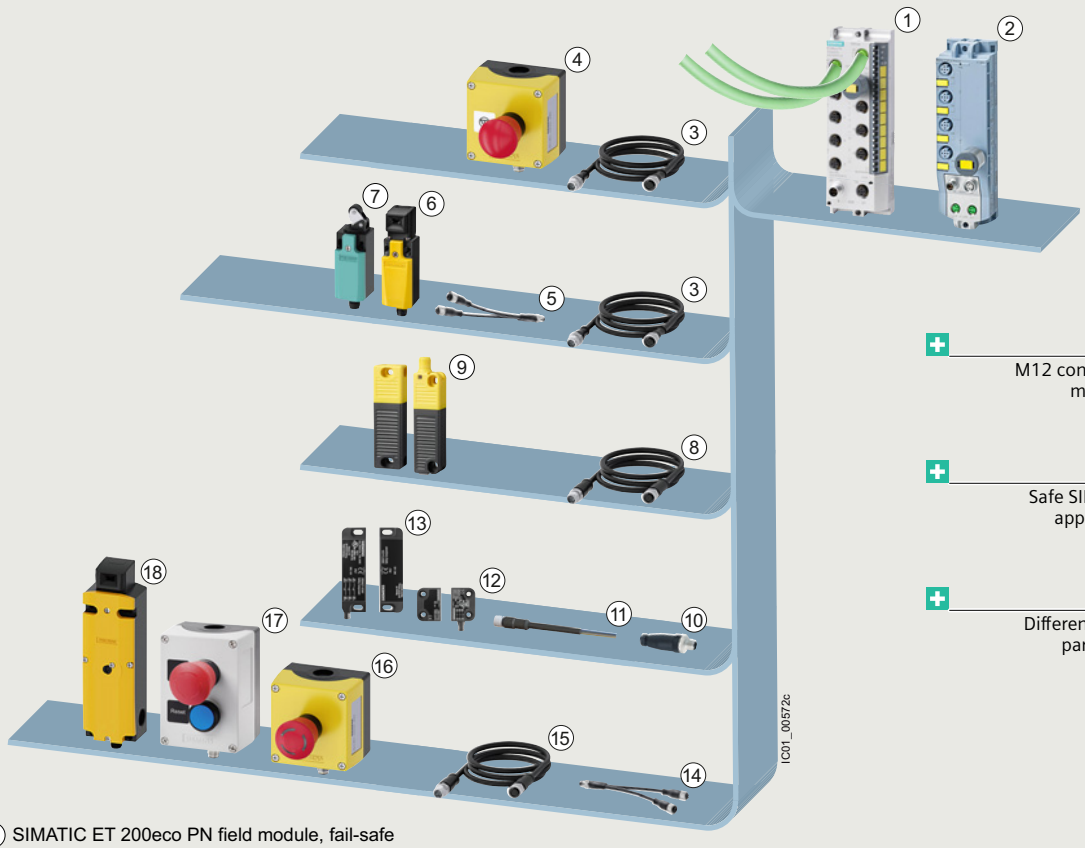
For more information, see also page 12/10.

Examples

- SIRIUS ACT enclosure, EMERGENCY STOP, with M12 plug, 5-pole and 8-pole
- Position switch, with M12 plug, 5-pole
- RFID safety switch, with M12 plug, 8-pole, and magnetically operated switch, 4-pole or 6-pole
- Safety switch with tumbler, with M12 plug, 8-pole

Advantages

- Identical pin assignment on the modules, connecting cables and sensors enables simple and fast connection and prevents connection errors and their consequences.
- Safe system technology in the field from the sensor to the field module




1. SIMATIC ET 200eco PN field module, fail-safe 6ES7146-6FF00-0AB0
2. SIMATIC ET 200AL field module, fail-safe 6ES7146-5FF00-0AB0
3. Connecting cables, 5-pole, 3SX5601-3SV15
4. SIRIUS ACT enclosure, EMERGENCY STOP, with M12 plug, 5-pole, 3SU1801-0NH00-4NB2
5. Y-cable, 5-pole to 2 x 5-pole, 6ES7194-6KB00-0XA0
6. Safety switch with separate actuator, without tumbler, with M12 plug, 5-pole, 3SE5114/3SE5234
7. Position switch, with M12 plug, 5-pole, 3SE5114/3SE5234
8. Adapter cable, with M12 socket, 8-pole and M12 plug, 5-pole, 3SX5601-3SV00-1AK3
9. Non-contact RFID safety switches, 8-pole, 3SE63
10. M12 plug, 5-pole, 3RK1902-4BA00-5AA0
11. Connecting cable with open end, 6-pole or 4-pole, 3SX5601-.GA05
12. Magnetically operated switches, 6-pole, 3SE66/3SE67
13. Magnetically operated switches, 4-pole, 3SE66/3SE67
14. Y-cable, 8-pole to 2 x 5-pole, 6ES7194-6KC00-0XA0
15. Connecting cable, 8-pole, 3SX5601-3SV18
16. SIRIUS ACT enclosure, EMERGENCY STOP, illuminated, with M12 plug, 8-pole, 3SU1801-0NV00-4SA2
17. SIRIUS ACT enclosure, EMERGENCY STOP and pushbutton, with M12 plug, 8-pole, 3SU1802-0NE00-4SB1
18. Safety switch with tumbler, with M12 plug, 8-pole, 3SE5324

Safety field system composed of SIRIUS sensors and SIMATIC ET 200 with the M12 connection method

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| Sensors with M12 plugs | Type | SIL | Connection accessories M12 method, A-coded | Type | Cable length |
|---|---|---|---|---|---|
| **SIRIUS ACT enclosure, EMERGENCY STOP** | | | | | |
| **Enclosure** plastic, yellow, with 1 command point, A = EMERGENCY STOP mushroom pushbutton, red, M12 plug (5-pole) | 3SU1801-0NH00-4NB2 (see page 13/105) | 3 | **Connecting cable** with M12 socket, 5-pole and M12 plug, 5-pole | 3SX5601-3SV15 (see page 12/46) | 1 m |
| | | | **or** | | |
| | | | **Connecting cable** with M12 socket, 5-pole, open end | 3SX5601-3SB55 (see page 12/46) | 5 m |
| | | | **and** | | |
| | | | **M12 plug** 5-pole, straight, separate item | 3RK1902-4BA00-5AA0 (see page 12/47) | -- |
| **Mechanical safety switches** | | | | | |
| ***Plastic 31 mm*** | | | | | |
| **Basic switch with rounded plunger for modular design** with M12 plug, 5-pole + **actuator head** (order separately), e.g. roller lever 3SE5000-0AE10 | 3SE5234-0LC05-1AE2 (basic switches, see page 12/18, actuator heads, see page 12/19) | 1 | | | |
| **Position switch, roller plunger** with M12 plug, 5-pole | 3SE5234-0LD03-1AE2 (see page 12/16) | 1 | | | |
| **Position switch, roller lever** with M12 plug, 5-pole | 3SE5234-0LE11-1AE2 (see page 12/16) | 2 | | | |
| **Safety switch with separate actuator without tumbler** with M12 plug, 5-pole + **actuator** (order separately), e.g. standard 3SE5000-0AV01 | 3SE5234-0QV40-1AE2 (see page 12/53) Actuator (see page 12/58) | 2 | **Connecting cable** with M12 socket, 5-pole and M12 plug, 5-pole | 3SX5601-3SV15 (see page 12/46) | 1 m |
| | | | **or** | | |
| ***Metal, 40 mm*** | | | **Connecting cable** with M12 socket, 5-pole, open end | 3SX5601-3SB55 (see page 12/46) | 5 m |
| | | | **and** | | |
| **Basic switch for modular design** with M12 plug, 5-pole + **actuator head** (order separately), e.g. roller plunger 3SE5000-0AD02 | 3SE5114-0LA00-1AE3 (basic switches, see page 12/34, actuator heads, see page 12/35) | 1 | **M12 plug** 5-pole, straight, separate item | 3RK1902-4BA00-5AA0 (see page 12/47) | -- |
| **Position switch, roller plunger** with M12 plug, 5-pole | 3SE5114-0LD02-1AE3 (see page 12/31) | 1 | | | |
| **Position switch, twist lever** with M12 plug, 5-pole | 3SE5114-0LH01-1AE3 (see page 12/32) | 1 | | | |
| **Position switch, plain plunger** with M12 plug, 5-pole | 3SE5114-0LB01-1AE3 (see page 12/31) | 1 | | | |
| **Safety switch with separate actuator without tumbler** with M12 plug, 5-pole + **actuator** (order separately), e.g. standard 3SE5000-0AV01 | 3SE5114-0QV10-1AE3 (see page 12/57) Actuator (see page 12/58) | 2 | | | |
| ***Combinations (examples)*** | | | | | |
| **Position switch + safety switch with separate actuator, without tumbler** **Actuator** (order separately), e.g. standard 3SE5000-0AV01 | 3SE5114-0LH01-1AE3 (see page 12/32)+ 3SE5234-0QV40-1AE2 (see page 12/53) Actuator (see page 12/58) | 3 | **ET 200 Y-cable for connecting 2 x 1-channel sensors** with M12 plug, 5-pole on 2 x M12 sockets, 5-pole | 6ES7194-6KB00-0XA0 (see page 12/46) | 0.2 m |
| | | | **Extend if necessary with** | | |
| **2 x safety switches with separate actuator, without tumbler** **Actuator** (order separately), e.g. standard 3SE5000-0AV01 | 3SE5234-0QV40-1AE2, 3SE5234-0QV40-1AE2 (see page 12/53) Actuator (see page 12/58) | 3 | **Connecting cable** with M12 socket, 5-pole and M12 plug, 5-pole | 3SX5601-3SV15 (see page 12/46) | 1 m |
| | | | **or** | | |
| | | | **Connecting cable** with M12 socket, 5-pole, open end | 3SX5601-3SB55 (see page 12/46) | 5 m |
| | | | **and** | | |
| **2 x position switches** | 3SE5114-0LH01-1AE3 (see page 12/32) 3SE5234-0LE11-1AE2 (see page 12/16) | 3 | **M12 plug** 5-pole, straight, separate item | 3RK1902-4BA00-5AA0 (see page 12/47) | -- |

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## Safety cabling in the field with IP67

| Sensors with M12 plugs | | Type | SIL | Connection accessories M12 method, A-coded | | Type | Cable length |
|---|---|---|---|---|---|---|---|
| **Non-contact safety switches (examples)** | | | | | | | |
| | **RFID safety switch** family-coded | 3SE6315-0BB01 (see page 12/121) | 3 | | | | |
| | **+ actuator** | 3SE6310-0BC01 (see page 12/121) | | | | | |
| | **RFID safety switch,** individually coded, programmable several times | 3SE6315-0BB02 (see page 12/121) | 3 | | **Adapter cable** with M12 socket, 8-pole on M12 plug, 5-pole | 3SX5601-3SV00-1AK3 (see page 12/121) | 0.5 m |
| | **+ actuator** | 3SE6310-0BC01 (see page 12/121) | | | **Extend if necessary with** | | |
| | **RFID safety switch,** individually coded, programmable once | 3SE6315-0BB03 (see page 12/121) | 3 | | **Connecting cable** with M12 socket, 5-pole and M12 plug, 5-pole | 3SX5601-3SV15 (see page 12/46) | 1 m |
| | **+ actuator** | 3SE6310-0BC01 (see page 12/121) | | | | | |
| | **Magnetically operated switch** (cable 3 m) | 3SE6605-2BA (see page 12/116) | 3 | | **M12 plug** 5-pole, straight, separate item | 3RK1902-4BA00-5AA0 (see page 12/47) | -- |
| | **+ switching solenoid** (25 x 88 mm), coded | 3SE6704-2BA (see page 12/116) | | | **or** | | |
| | | | | | **M12 plug** 5-pole, angled, separate item | 3RK1902-4DA00-5AA0 (see page 12/47) | -- |
| | **Magnetically operated switch** (25 x 88 mm), M8 plug, 4-pole + LED, door hinge **left**, 2 NC | 3SE6614-4CA01 (see page 12/116) | 3 | | **Connecting cable** with M8 socket, 4-pole, open end | 3SX5601-3GA05 (see page 12/46) | 5 m |
| | **+ switching solenoid** (25 x 88 mm), coded | 3SE6714-2CA (see page 12/116) | | | **and** | | |
| | **Magnetically operated switch** (25 x 88 mm), M8 plug, 4-pole + LED, door hinge **right**, 2 NC | 3SE6624-4CA01 (see page 12/117) | 3 | | **M12 plug** 5-pole, straight, separate item | 3RK1902-4BA00-5AA0 (see page 12/47) | -- |
| | **+ switching solenoid** (25 x 88 mm), coded | 3SE6714-2CA (see page 12/116) | | | **or** | | |
| | | | | | **M12 plug** 5-pole, angled, separate item | 3RK1902-4DA00-5AA0 (see page 12/47) | -- |
| | **Magnetically operated switch** (25 x 88 mm), 8 mm Ø latching connection, plug, 6-pole, door hinge **left**, 2 NC + 1 NC signaling contact | 3SE6617-2CA01 (see page 12/116) | 3 | | | | |
| | **+ switching solenoid** (25 x 88 mm), coded | 3SE6714-2CA (see page 12/116) | | | | | |
| | **Magnetically operated switch** (25 x 88 mm), 8 mm Ø latching connection, plug, 6-pole, door hinge **right**, 2 NC + 1 NC signaling contact | 3SE6627-2CA01 (see page 12/117) | 3 | | **Connecting cable** with socket 8 mm, latching connection, 6-pole, open end | 3SX5601-4GA05 (see page 12/46) | 5 m |
| | **+ switching solenoid** (25 x 88 mm), coded | 3SE6714-2CA (see page 12/116) | | | **and** | | |
| | | | | | **M12 plug** 5-pole, straight, separate item | 3RK1902-4BA00-5AA0 (see page 12/47) | -- |
| | **Magnetically operated switch** (26 x 36 mm), 8 mm Ø latching connection, plug, 6-pole, door hinge **left**, 2 NC + 1 NC signaling contact | 3SE6617-3CA01 (see page 12/116) | 3 | | **or** | | |
| | **+ switching solenoid** (26 x 36 mm), coded | 3SE6714-3CA (see page 12/116) | | | **M12 plug** 5-pole, angled, separate item | 3RK1902-4DA00-5AA0 (see page 12/47) | -- |
| | **Magnetically operated switch** (26 x 36 mm), 8 mm Ø latching connection, plug, 6-pole, door hinge **right**, 2 NC + 1 NC signaling contact | 3SE6627-3CA01 (see page 12/117) | 3 | | | | |
| | **+ switching solenoid** (26 x 36 mm), coded | 3SE6714-3CA (see page 12/116) | | | | | |

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| Sensors with M12 plugs | | Type | SIL | Connection accessories M12 method, A-coded | | Type | Cable length |
|---|---|---|---|---|---|---|---|
| **Mechanical safety switches with tumbler** | | | | | | | |
| | **Safety switch with tumbler, with solenoid monitoring, with auxiliary release** M12 plug, 8-pole, monitoring 1 x door + 1 x interlocking, connection to an F-DI input and an F-DQ output via a Y-cable | 3SE5324-0SD21-1AE4 (see page 12/65) | 2 | | **Connecting cable** with M12 socket, 8-pole and M12 plug, 8-pole | 3SX5601-3SV18 (see page 12/69) | 1 m |
| | | | | | **and** | | |
| | **+ actuator** (order separately), e.g. standard 3SE5000-0AV01, high-grade steel 3SE5000-0AW51 | Actuators (see page 12/58) | | | **ET 200 Y-cable for connecting 1 x 2-channel sensor** with M12 socket, 8-pole on 2 x M12 plugs, 5-pole | 6ES7194-6KC00-0XA0 (see page 12/69) | 0.2 m |
| | | | | | **or** | | |
| | | | | | **Connecting cables** with M12 socket, 8-pole, straight, open end | 3SX5601-2GA03 (see page 12/69) | 3 m |
| | | | | | | 3SX5601-2GA05 (see page 12/69) | 5 m |
| | | | | | | 3SX5601-2GA10 (see page 12/69) | 10 m |
| | | | | | | 3SX5601-2GA15 (see page 12/69) | 15 m |
| | | | | | **and** | | |
| | | | | | **M12 plug** 8-pole, straight | 6GT2090-0BE00 (see page 12/69) | -- |
| | | | | | **and** | | |
| | **Safety switch with tumbler, with solenoid monitoring, with escape release from the back and auxiliary release with lock from the front** M12 plug, 8-pole, monitoring 1 x door + 1 x interlocking, connection to an F-DI input and an F-DQ output via a Y-cable | 3SE5324-0SH21-1AE4 (see page 12/65) | 2 | | **ET 200 Y-cable for connecting 1 x 2-channel sensor** with M12 socket, 8-pole on 2 x M12 plugs, 5-pole | 6ES7194-6KC00-0XA0 (see page 12/69) | 0.2 m |
| | | | | | **or** | | |
|  | **+ actuator** (order separately), e.g. standard 3SE5000-0AV01, high-grade steel 3SE5000-0AW51 | Actuators (see page 12/58) | | | **Connecting cables** with M12 socket, 8-pole, straight, open end | 3SX5601-2GA03 (see page 12/69) | 3 m |
| | | | | | | 3SX5601-2GA05 (see page 12/69) | 5 m |
| | | | | | | 3SX5601-2GA10 (see page 12/69) | 10 m |
| | | | | | | 3SX5601-2GA15 (see page 12/69) | 15 m |
| | | | | | **and** | | |
| | **Safety switch with tumbler, without solenoid monitoring, with auxiliary release** M12 plug, 8-pole, monitoring 2 x door + 0 x interlocking, connection to an F-DI input and an F-DQ output via a Y-cable | 3SE5324-0SD21-1AE5 (see page 12/65) | 2 | | **2 x M12 plugs** 5-pole, straight, separate item | 3RK1902-4BA00-5AA0 (see page 12/47) | -- |
| | | | | | **or** | | |
|  | **+ actuator** (order separately), e.g. standard 3SE5000-0AV01, high-grade steel 3SE5000-0AW51 | Actuators (see page 12/58) | | | **2 x M12 plugs** 5-pole, angled, separate item | 3RK1902-4DA00-5AA0 (see page 12/47) | -- |

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## Safety cabling in the field with IP67

| Sensors with M12 plugs | | Type | SIL | Connection accessories M12 method, A-coded | | Type | Cable length |
|---|---|---|---|---|---|---|---|
| **Non-contact RFID safety switches with tumbler** | | | | | | | |
| | **RFID safety switch with tumbler,** for process protection (see Notes on page 12/125), M12 plug 8-pole, open-circuit principle, family-coded, connection to an F-DI input and an F-DQ output via a Y-cable | 3SE6415-1AB01 (see page 12/127) | 2 | | **Connecting cables** with M12 socket, 8-pole, straight, open end | 3SX5601-2GA03 (see page 12/128) | 3 m |
| | | | | | | 3SX5601-2GA05 (see page 12/128) | 5 m |
| | | | | | | 3SX5601-2GA10 (see page 12/128) | 10 m |
| | | | | | | 3SX5601-2GA15 (see page 12/128) | 15 m |
| | | | | | **and** | | |
| | **+ RFID actuator** (separate ordering), 3SE6410-1AC01 | Actuator (see page 12/127) | | | **2 x M12 plugs** 5-pole, straight, separate item | 3RK1902-4BA00-5AA0 (see page 12/128) | -- |
| | | | | | **or** | | |
| | | | | | **2 x M12 plugs** 5-pole, angled, separate item | 3RK1902-4DA00-5AA0 (see page 12/128) | -- |
| **SIRIUS ACT enclosures** | | | | | | | |
| | **Enclosure** plastic, yellow, with 1 command point, A = EMERGENCY STOP mushroom pushbutton, red, M12 plug (8-pole), connection to an F-DI input and an F-DQ output via a Y-cable | 3SU1801-0NV00-4SA2 (see page 13/105) | 3 | | **Connecting cable** with M12 socket, 8-pole and M12 plug, 8-pole | 3SX5601-3SV18 (see page 12/69) | 1 m |
| | | | | | **and** | | |
| | | | | | **ET 200 Y-cable for connecting 1 x 2-channel sensor** with M12 socket, 8-pole on 2 x M12 plugs, 5-pole | 6ES7194-6KC00-0XA0 (see page 12/69) | 0.2 m |
| | | | | | **or** | | |
| | **Enclosure** plastic, gray, with 2 command points, B = EMERGENCY STOP mushroom pushbutton, red, A = pushbutton, blue, M12 plug (8-pole), two connections to two F-DI inputs via a Y-cable | 3SU1802-0NE00-4SB1 (see page 13/105) | 3 | | **Connecting cables** with M12 socket, 8-pole, straight, open end | 3SX5601-2GA03 (see page 12/69) | 3 m |
| | | | | | | 3SX5601-2GA05 (see page 12/69) | 5 m |
| | | | | | | 3SX5601-2GA10 (see page 12/69) | 10 m |
| | | | | | | 3SX5601-2GA15 (see page 12/69) | 15 m |
| | | | | | **and** | | |
| | | | | | **M12 plug** 8-pole, straight | 6GT2090-0BE00 (see page 12/69) | -- |
| | | | | | **and** | | |
| | | | | | **ET 200 Y-cable for connecting 1 x 2-channel sensor** with M12 socket, 8-pole on 2 x M12 plugs, 5-pole | 6ES7194-6KC00-0XA0 (see page 12/69) | 0.2 m |

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## Overview

| More information |
|---|
| Homepage, see www.siemens.com/sirius-position-switches |
| Industry Mall, see www.siemens.com/product?3SF |
| Configurator, see www.siemens.com/sirius/configurators |
| Configuration Manual, see https://support.industry.siemens.com/cs/ww/en/view/43920150 |

The 3SF1 position switches with safety-related communication can be directly connected using the AS-Interface bus system. The safety functions no longer have to be wired up conventionally.

With the 3SF1 position switches the ASIsafe electronics are integrated in the switch enclosure.

Examples of selection options in the modular system

### *Modular system*

The position switches of the 3SF11.4 and 3SF12.4 series are designed as a modular system comprising different versions of the basic switch and an actuator which must be ordered separately. Thanks to the modular design of the switch the end users can select the right solution for their application from numerous versions and install it themselves in a very short time.

### *Design*

The 3SF1 switches are available in four different enclosure sizes:

- Plastic and metal enclosures according to EN 50047, 31 mm wide, with M12 device plug
- Metal enclosures according to EN 50041, 40 mm wide, with M12 device plug
- Plastic enclosures, 50 mm wide, with M12 device plug and M12 socket
- Metal enclosures, 56 mm wide, with M12 device plug and M12 socket

### *Display*

The switches have a status display with three LEDs:

- LED 1 (yellow): F-IN1
- LED 2 (yellow): F-IN2
- LED 3 (green/red): AS-i/FAULT

### *Connection*

Connection to the AS-Interface is by means of a 4-pole M12 device plug (plastic version) connected to the yellow AS-Interface bus cable.

The wide enclosures (50 or 56 mm) also have an M12 socket for connecting a second position switch. In this way, SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1 is reached.

## Benefits

The 3SF1 safety switches provide:

- ASIsafe electronics integrated in the enclosure, with low power consumption < 60 mA
- An extensive range of actuators
- Status display with three LEDs
- Can be integrated easily via TIA Portal

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## General data

### Application

With the standard position switches, mechanical positions of moving machine parts are converted into electrical signals. Through their modular and uniform design and large number of variants, the devices can comply with practically all requirements in industry.

Devices are available with enclosure versions to suit the particular ambient conditions. Different control tasks can be performed with the contact blocks best suited for the particular purpose. And many different actuator variants are available to match the mechanical configuration of the moving machine parts. Dimensions, fixing points and characteristics are largely in accordance with the EN 50041 or EN 50047 standards.

The devices are suitable for use in any climate.

#### *Standards*

The switches comply with IEC 60947-1 (Low-Voltage Switchgear and Controlgear, General) and IEC 60947-5-1 (Electromechanical Control Circuit Devices).

The mechanical design of the switches corresponds to the requirements of the fail-safe principle according to ISO 14119.

#### *Approvals*

AS-Interface according to IEC 62026-2

The 3SF1 position switches are approved according to UL 508, UL 50 and UL 746-C.

#### *Safety circuits*

Standard IEC 60947-5-1 requires positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked according to the standard IEC 60947-5-1 with the symbol ➔.

With a 3SF1 safety switch with ➔, SIL 2 according to IEC 62061/IEC 61508 or PL c according to ISO 13849-1 can be attained if the corresponding fail-safe evaluation units are selected from the ASIsafe program and correctly installed.

If a second 3SF1 safety switch with ➔ is used, SIL 3/PL e can be attained.

#### *Evaluation of safety functions*

Safety Evaluation in the TIA Selection Tool

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.

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## Technical specifications

| Type | | 3SF11.., 3SF12.. |
|---|---|---|
| **General data** | | |
| **Standards** | | IEC 60947-5-1, ISO 14119 |
| **According to AS-Interface specification** | | |
| • I/O configuration/ID configuration | | 0/B |
| • ID1 code/ID2 code (hex) | | F/F |
| • Power consumption, overall | mA | ≤ 60 |
| **Inputs** | | |
| • Low signal range | | Contact open |
| • High signal range | | Contact closed, $I_{in}$ dynamic ($I_{peak}$ ≥ 5 mA) |
| **Status display** | | Green/red dual LED |
| **Rated impulse withstand voltage $U_{imp}$** | kV | 0.6 |
| **EMC strength** | | |
| • IEC 61000-1-2 | kV | 4 |
| • IEC 61000-4-3 | V/m | 10 |
| • IEC 61000-4-4 (A/B) | kV | 1/2 |
| **Mechanical endurance** | | |
| • Basic switch | | 15 x $10^6$ operating cycles |
| • With separate actuator, 3SF1...-..V.. | | 1 x $10^6$ operating cycles |
| **PFH value** | | |
| Probability of failure upon request of the safety function, with 1 actuation per hour and B10 = 5 x $10^6$ | | |
| • Basic switch | 1/h | 4 x $10^{-9}$ |
| • With separate actuator, 3SF1...-..V.. | 1/h | 2 x $10^{-9}$ |
| • Hinge switch, 3SF1...-..U.. | 1/h | 2 x $10^{-9}$ |
| **Shock resistance** according to IEC 60068-2-27 | | 30 *g*/11 ms |

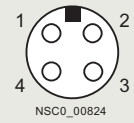
| Type | | 3SF1234 | 3SF1134 | 3SF1244 | 3SF1214 | 3SF1114 | 3SF1124 |
|---|---|---|---|---|---|---|---|
| **Enclosure** | | | | | | | |
| **Enclosure** | | | | | | | |
| • Material | | Ultramid A3X2G7 | | | Zinc die-casting GD-ZnAl4Cu1 | | |
| • Width | mm | 31 | 40 | 50 | 31 | 40 | 56 |
| • Dimensions according to EN | | EN 50047 | EN 50041 | -- | EN 50047 | EN 50041 | -- |
| **Degree of protection** according to IEC 60529 | | IP65 | IP66/IP67 | | | | |
| **Ambient temperature** | | | | | | | |
| • During operation | °C | -25 ... +60 | | | | | |
| • Storage, transport | °C | -40 ... +80 | | | | | |
| **Mounting position** | | Any | | | | | |

### *Pin assignments*

**M12 device plug, 4-pole**

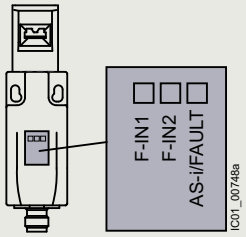
1 ASi +
2 Not assigned
3 ASi –
4 Not assigned

**M12 socket, 4-pole**




1 Channel 2
2 Channel 2
3 Not assigned
4 Not assigned

### *LED displays*




3SF1 safety switches with AS-i and LED status displays

**Status display (operating state)**

| LED | No voltage on AS-Interface chip | Communication OK | Communication failed | Slave has address "0" |
|---|---|---|---|---|
| AS-i/Fault (GN/RD/YE) | | | | |

**Safe inputs**

| LED | Not actuated | Actuated | | |
|---|---|---|---|---|
| F-IN1 (YE) | | | -- | -- |
| F-IN2 (YE) | | | -- | -- |

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## Selection and ordering data

### *Modular system*

For the ASIsafe version of the position switch, the basic switch and actuator must be ordered separately.

1 or 2 contacts · 3 LEDs · Degree of protection IP65 (31 mm) or IP66/IP67 (50 mm) · M12 device plug

| Version | Contacts | LEDs | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 31 mm according to EN 50047 · Degree of protection IP65** | | | | | | | | |
| <br>3SF1234-1KC05-1BA1 | | | | | | | | |
| ***Rounded plungers***[1] | | | | | | | | |
| **With M12 device plug, 4-pole** | | | | | | | | |
| Channel 1 on NC contact, channel 2 on NC contact | | | | | | | | |
| • Slow-action contacts | 2 NC | 24 V DC | ⊖ | **3SF1234-1KC05-1BA1** | | 1 | 1 unit | 42A |
| • Snap-action contacts | 2 NC | 24 V DC | ⊖ | **3SF1234-1LC05-1BA1** | | 1 | 1 unit | 42A |
| **Basic switches · Enclosure width 50 mm · Degree of protection IP66/IP67 · Operating points according to EN 50047** | | | | | | | | |
| <br>3SF1244-1KC05-1BA2 | | | | | | | | |
| ***Rounded plungers***[1] | | | | | | | | |
| **With M12 device plug, 4-pole** | | | | | | | | |
| Channel 1 on NC contact, channel 2 on M12 socket, right | | | | | | | | |
| • Slow-action contacts | 1 NC | 24 V DC | ⊖ | **3SF1244-1KC05-1BA2** | | 1 | 1 unit | 42A |
| • Snap-action contacts | 1 NC | 24 V DC | ⊖ | **3SF1244-1LC05-1BA2** | | 1 | 1 unit | 42A |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, for use in safety circuits.

1) For enclosures with widths of 31 mm and 50 mm, the basic switch is a complete unit with rounded plungers.

Note:

For the selection aid, see page 12/13.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | | Roller diameter | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | | | mm | | | | | | |
| **Operating mechanisms** | | | | | | | | | |
| 3SE5000-0AB01 | **Plain plungers** | | | | | | | | |
| | • High-grade steel plungers | | 8.5 | ➔ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| 3SE5000-0AD03 | **Roller plungers, type C, according to EN 50047** | | | | | | | | |
| | • Plastic roller | | 10 | ➔ | **3SE5000-0AD03** | | 1 | 1 unit | 41K |
| | • High-grade steel roller | | 10 | ➔ | **3SE5000-0AD04** | | 1 | 1 unit | 41K |
| 3SE5000-0AD10 | **Roller plungers with central fixing** | | | | | | | | |
| | • Plastic roller | | 10 | ➔ | **3SE5000-0AD10** | | 1 | 1 unit | 41K |
| | • High-grade steel roller | | 10 | ➔ | **3SE5000-0AD11** | | 1 | 1 unit | 41K |
| 3SE5000-0AE10 | **Roller levers, type E, according to EN 50047** | | | | | | | | |
| | • Metal lever | Plastic roller | 13 | ➔ | **3SE5000-0AE10** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 13 | ➔ | **3SE5000-0AE11** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 13 | ➔ | **3SE5000-0AE12** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 13 | ➔ | **3SE5000-0AE13** | | 1 | 1 unit | 41K |
| 3SE5000-0AF10 | **Angular roller levers** | | | | | | | | |
| | • Metal lever | Plastic roller | 13 | ➔ | **3SE5000-0AF10** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 13 | ➔ | **3SE5000-0AF11** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 13 | ➔ | **3SE5000-0AF12** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 13 | ➔ | **3SE5000-0AF13** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | | | |
| 3SE5000-0AK00 | **Twist actuators, for 31/50 mm, according to EN 50047** | | | | | | | | |
| | • Switching right or left, adjustable | | -- | ➔ | **3SE5000-0AK00** | | 1 | 1 unit | 41K |
| 3SE5000-0AA21 | ***Levers*** | | | | | | | | |
| | **Twist levers, type A, according to EN 50047** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA21** | | 1 | 1 unit | 41K |
| | | | 30 | ➔ | **3SE5000-0AA25** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ➔ | **3SE5000-0AA22** | | 1 | 1 unit | 41K |
| | | - With ball bearing | 19 | ➔ | **3SE5000-0AA23** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA31** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ➔ | **3SE5000-0AA32** | | 1 | 1 unit | 41K |
| | **Twist levers 30 mm, straight[1)]** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | | | 30 | ➔ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| 3SE5000-0AA60 | **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| | | | 50 | ➔ | **3SE5000-0AA67** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ➔ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| | | Rubber roller | 50 | ➔ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ➔ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |
| | | Rubber roller | 50 | ➔ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |

➔ Positively driven actuator, for use in safety circuits.

1) Can be clinch mounted (rotated 180°, rear of lever).

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## Selection and ordering data

### *Modular system*

For the ASIsafe version of the position switch, the basic switch and actuator must be ordered separately.

2 contacts · 3 LEDs · Degree of protection IP66/IP67 · M12 device plug

| Version | Contacts | LEDs | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 31 mm according to EN 50047** | | | | | | | | |
| 3SF1214-1KC05-1BA1 | | | | | | | | |
| ***Rounded plungers***[1] | | | | | | | | |
| **With M12 device plug, 4-pole** | | | | | | | | |
| Channel 1 on NC contact, channel 2 on NC contact | | | | | | | | |
| • Slow-action contacts | 2 NC | 24 V DC | ⊖ | **3SF1214-1KC05-1BA1** | | 1 | 1 unit | 42A |
| • Snap-action contacts | 2 NC | 24 V DC | ⊖ | **3SF1214-1LC05-1BA1** | | 1 | 1 unit | 42A |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, for use in safety circuits.

1) For enclosures with widths of 31 mm, the basic switch is a complete unit with rounded plungers.

Note:

For the selection aid, see page 12/13.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | | Roller diameter | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | | | mm | | | | | | |
| **Operating mechanisms** | | | | | | | | | |
| 3SE5000-0AB01 | **Plain plungers** | | | | | | | | |
| | • High-grade steel plunger | | 8.5 | ⊖ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| 3SE5000-0AD03 | **Roller plungers, type C, according to EN 50047** | | | | | | | | |
| | • Plastic roller | | 10 | ⊖ | **3SE5000-0AD03** | | 1 | 1 unit | 41K |
| | • High-grade steel roller | | 10 | ⊖ | **3SE5000-0AD04** | | 1 | 1 unit | 41K |
| 3SE5000-0AD10 | **Roller plungers with central fixing** | | | | | | | | |
| | • Plastic roller | | 10 | ⊖ | **3SE5000-0AD10** | | 1 | 1 unit | 41K |
| | • High-grade steel roller | | 10 | ⊖ | **3SE5000-0AD11** | | 1 | 1 unit | 41K |
| 3SE5000-0AE10 | **Roller levers, type E, according to EN 50047** | | | | | | | | |
| | • Metal lever | Plastic roller | 13 | ⊖ | **3SE5000-0AE10** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 13 | ⊖ | **3SE5000-0AE11** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 13 | ⊖ | **3SE5000-0AE12** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 13 | ⊖ | **3SE5000-0AE13** | | 1 | 1 unit | 41K |
| 3SE5000-0AF10 | **Angular roller levers** | | | | | | | | |
| | • Metal lever | Plastic roller | 13 | ⊖ | **3SE5000-0AF10** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 13 | ⊖ | **3SE5000-0AF11** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 13 | ⊖ | **3SE5000-0AF12** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 13 | ⊖ | **3SE5000-0AF13** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | | | |
| 3SE5000-0AK00 | **Twist actuators, for 31/50 mm, according to EN 50047** | | | | | | | | |
| | Switching right or left, adjustable | | -- | ⊖ | **3SE5000-0AK00** | | 1 | 1 unit | 41K |
| 3SE5000-0AA21 | ***Levers*** | | | | | | | | |
| | **Twist levers, type A, according to EN 50047** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ⊖ | **3SE5000-0AA21** | | 1 | 1 unit | 41K |
| | | | 30 | ⊖ | **3SE5000-0AA25** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ⊖ | **3SE5000-0AA22** | | 1 | 1 unit | 41K |
| | | - With ball bearing | 19 | ⊖ | **3SE5000-0AA23** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 19 | ⊖ | **3SE5000-0AA31** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ⊖ | **3SE5000-0AA32** | | 1 | 1 unit | 41K |
| | **Twist levers 30 mm, straight[1)]** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ⊖ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | | | 30 | ⊖ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| 3SE5000-0AA60 | **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ⊖ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| | | | 50 | ⊖ | **3SE5000-0AA67** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ⊖ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| | | Rubber roller | 50 | ⊖ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 19 | ⊖ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ⊖ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |

⊖ Positively driven actuator, for use in safety circuits.

1) Can be clinch mounted (rotated 180°, rear of lever).

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## Selection and ordering data

### *Modular system*

For the ASIsafe version of the position switch, the basic switch and actuator must be ordered separately.

1 or 2 contacts · 3 LEDs · Degree of protection IP66/IP67 · M12 device plug

| Version | Contacts | LEDs | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 40 mm according to EN 50041** | | | | | | | | |
| <br>3SF1114-1KA00-1BA1 | | | | | | | | |
| ***Rounded plungers*** | | | | | | | | |
| **With M12 device plug, 4-pole** | | | | | | | | |
| Channel 1 on NC contact, channel 2 on NC contact | | | | | | | | |
| • Slow-action contacts | 2 NC | 24 V DC | ➔ | **3SF1114-1KA00-1BA1** | | 1 | 1 unit | 42A |
| • Snap-action contacts | 2 NC | 24 V DC | ➔ | **3SF1114-1LA00-1BA1** | | 1 | 1 unit | 42A |
| **Basic switches · Enclosure width 56 mm · Operating points according to EN 50041** | | | | | | | | |
| <br>3SF1124-1KA00-1BA2 | | | | | | | | |
| ***Rounded plungers*** | | | | | | | | |
| **With M12 device plug, 4-pole** | | | | | | | | |
| Channel 1 on NC contact, channel 2 on M12 socket, right | | | | | | | | |
| • Slow-action contacts | 1 NC | 24 V DC | ➔ | **3SF1124-1KA00-1BA2** | | 1 | 1 unit | 42A |
| • Snap-action contacts | 1 NC | 24 V DC | ➔ | **3SF1124-1LA00-1BA2** | | 1 | 1 unit | 42A |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, for use in safety circuits.

Note:

For the selection aid, see page 12/13.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | | Diameter mm | | Modular system Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Operating mechanisms** | | | | | | | | | |
| 3SE5000-0AB01 | **Plain plungers** | | | | | | | | |
| | • High-grade steel plunger | | 8.5 | ➔ | **3SE5000-0AB01** | | 1 | 1 unit | 41K |
| 3SE5000-0AC02 | **Rounded plungers, type B, according to EN 50041** | | | | | | | | |
| | • High-grade steel plunger, with 3 mm overtravel | | 10 | ➔ | **3SE5000-0AC02** | | 1 | 1 unit | 41K |
| 3SE5000-0AD02 | **Roller plungers, type C, according to EN 50041** | | | | | | | | |
| | • High-grade steel roller, with 3 mm overtravel | | 13 | ➔ | **3SE5000-0AD02** | | 1 | 1 unit | 41K |
| 3SE5000-0AE01 | **Roller levers** | | | | | | | | |
| | • Metal lever | Plastic roller | 22 | ➔ | **3SE5000-0AE01** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 22 | ➔ | **3SE5000-0AE02** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 22 | ➔ | **3SE5000-0AE03** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 22 | ➔ | **3SE5000-0AE04** | | 1 | 1 unit | 41K |
| 3SE5000-0AF01 | **Angular roller levers** | | | | | | | | |
| | • Metal lever | Plastic roller | 22 | ➔ | **3SE5000-0AF01** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 22 | ➔ | **3SE5000-0AF02** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 22 | ➔ | **3SE5000-0AF03** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 22 | ➔ | **3SE5000-0AF04** | | 1 | 1 unit | 41K |
| **Twist actuators** | | | | | | | | | |
| 3SE5000-0AH00 | **Twist actuators, for 40/56/56 mm, XL, according to EN 50041** | | | | | | | | |
| | • For twist levers, switching right and/or left, adjustable, only for enclosure widths 40 and 56 mm | | -- | ➔ | **3SE5000-0AH00** | | 1 | 1 unit | 41K |
| | • For fork levers, latching | | -- | ➔ | **3SE5000-0AT10** | | 1 | 1 unit | 41K |
| 3SE5000-0AA01 | ***Levers*** | | | | | | | | |
| | **Twist levers 27 mm, offset, type A, according to EN 50041** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA01** | | 1 | 1 unit | 41K |
| | | | 30 | ➔ | **3SE5000-0AA05** | | 1 | 1 unit | 41K |
| | | | 50 | ➔ | **3SE5000-0AA07** | | 1 | 1 unit | 41K |
| | | 2 plastic rollers | 19 | ➔ | **3SE5000-0AA04** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ➔ | **3SE5000-0AA02** | | 1 | 1 unit | 41K |
| | | - With ball bearing | 19 | ➔ | **3SE5000-0AA03** | | 1 | 1 unit | 41K |
| | | Rubber roller | 50 | ➔ | **3SE5000-0AA08** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA11** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ➔ | **3SE5000-0AA12** | | 1 | 1 unit | 41K |
| | **Twist levers 35 mm, offset, type A, according to EN 50041** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA15** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA16** | | 1 | 1 unit | 41K |
| | **Twist levers 30 mm, straight[1], type A, according to EN 50041** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA24** | | 1 | 1 unit | 41K |
| | | | 30 | ➔ | **3SE5000-0AA26** | | 1 | 1 unit | 41K |
| 3SE5000-0AA60 | **Twist levers 100 mm, adjustable length, with grid hole** | | | | | | | | |
| | • Metal lever | Plastic roller | 19 | ➔ | **3SE5000-0AA60** | | 1 | 1 unit | 41K |
| | | | 50 | ➔ | **3SE5000-0AA67** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ➔ | **3SE5000-0AA61** | | 1 | 1 unit | 41K |
| | | Rubber roller | 50 | ➔ | **3SE5000-0AA68** | | 1 | 1 unit | 41K |
| | • High-grade steel lever | Plastic roller | 19 | ➔ | **3SE5000-0AA62** | | 1 | 1 unit | 41K |
| | | High-grade steel roller | 19 | ➔ | **3SE5000-0AA63** | | 1 | 1 unit | 41K |
| 3SE5000-0AT01 | **Fork levers** (for switches with snap-action contacts only) | | | | | | | | |
| | • 2 metal levers | 2 plastic rollers | 19 | ➔ | **3SE5000-0AT01** | | 1 | 1 unit | 41K |
| | | 2 high-grade steel rollers | 19 | ➔ | **3SE5000-0AT02** | | 1 | 1 unit | 41K |
| | • 2 high-grade steel levers | 2 plastic rollers | 19 | ➔ | **3SE5000-0AT03** | | 1 | 1 unit | 41K |
| | | 2 high-grade steel rollers | 19 | ➔ | **3SE5000-0AT04** | | 1 | 1 unit | 41K |

➔ Positively driven actuator, for use in safety circuits.

[1] Can be clinch mounted (rotated 180°, rear of lever).

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## General data

### Overview

The 3SF1 safety switches with safety-related communication can be directly connected using the AS-Interface bus system. The safety functions no longer have to be wired up conventionally.

With the 3SF1 safety switches the ASIsafe electronics are integrated in the switch enclosure.

3SF1 safety switches with head for separate actuator and with integrated ASIsafe electronics

3SF1 safety switches with separate actuator have the same enclosures as the 3SF1 position switches.

#### *Operation*

The actuator head is included in the scope of supply. For actuation from four directions it can be adjusted through 4 × 90°. The switches can also be approached from above.

The actuator is not included in the scope of supply of the safety switches and must be ordered separately from a choice of different versions to suit the application (see page 12/106).

The actuator is encoded. Simple overruling by hand or auxiliary devices is impossible.

Locking devices

A high-grade steel blocking insert for attaching up to eight padlocks is available for even more security (see page 12/106).

Dust protection

For use in dusty environments, a protective cap made of rubber is offered that protects the actuator entries of the actuator head from contamination (see page 12/106).

#### *Display*

The switches have a status display with three LEDs:

- LED 1 (yellow): F-IN1
- LED 2 (yellow): F-IN2
- LED 3 (green/red): AS-i/FAULT

#### *Connection*

Connection to the AS-Interface is by means of a 4-pole M12 device plug (plastic version) connected to the yellow AS-Interface bus cable.

The wide enclosures (50 or 56 mm) also have an M12 socket for connecting a second safety switch. In this way, SIL 3 according to IEC 62061/IEC 61508 or PL e according to ISO 13849-1 is reached.

### Benefits

The 3SF1 safety switches with separate actuator provide:

- ASIsafe electronics integrated in the enclosure, with low power consumption < 60 mA
- An extensive range of actuators
- Status display with three LEDs

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## Application

Safety switches with separate actuator are used where the position of doors, covers or protective grilles must be monitored for safety reasons.

The safety switch can only be operated with the matching coded actuator. Simple overruling by hand or auxiliary devices is impossible.

Devices are available with enclosure versions to suit the particular ambient conditions. Different control tasks can be performed with the contact blocks best suited for the particular purpose. Dimensions and fixing points of the enclosure are in accordance with EN 50041 or EN 50047 standards.

The devices are suitable for use in any climate.

### *Standards*

The switches comply with IEC 60947-1 (Low-Voltage Switchgear and Controlgear, General) and IEC 60947-5-1 (Electromechanical Control Circuit Devices).

The mechanical design of the switches corresponds to the requirements of the fail-safe principle according to ISO 14119.

### *Approvals*

AS-Interface according to IEC 62026-2

The 3SF1 safety switches are approved according to UL 508, UL 50 and UL 746-C.

### *Safety circuits*

Standard IEC 60947-5-1 requires positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked according to the standard IEC 60947-5-1 with the symbol ⊖.

With a 3SF1 safety switch with ⊖, SIL 2 according to IEC 62061/IEC 61508 or PL d according to ISO 13849-1 can be attained if the corresponding fail-safe evaluation units are selected from the ASIsafe program and correctly installed.

If a second 3SF1 safety switch with ⊖ is used, SIL 3/PL e can be attained.

### *Evaluation of safety functions*

Safety Evaluation in the TIA Selection Tool

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.

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## 3SF1, plastic enclosure > Enclosure width 31 mm according to EN 50047/50 mm

### Overview

- Contacts: 1 or 2 slow-action contacts
- Status indicator with three LEDs 24 V DC:
  - LED 1: F-IN1
  - LED 2: F-IN2
  - LED 3: AS-i/FAULT
- Degree of protection IP65 (31 mm) or IP66/IP67 (50 mm)
- 5 directions of approach
- M12 device plugs

### Selection and ordering data

| | Version[1] | Contacts | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Enclosure width 31 mm according to EN 50047** | | | | | | | | |
| <br>3SF1234-1QV40-1BA1 | **With M12 device plug, 4-pole**<br>Channel 1 on NC contact, channel 2 on NC contact<br>• Slow-action contacts | 2 NC | ⊖ | **3SF1234-1QV40-1BA1** | | 1 | 1 unit | 42A |
| **Enclosure width 50 mm** | | | | | | | | |
| <br>3SF1244-1QV40-1BA2 | **With M12 device plug, 4-pole**<br>Channel 1 on NC contact, channel 2 on M12 socket, right<br>• Slow-action contacts | 1 NC | ⊖ | **3SF1244-1QV40-1BA2** | | 1 | 1 unit | 42A |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

[1] Supplied without actuator. Please order separately (see page 12/106).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

- Contacts: 1 or 2 slow-action contacts
- Status indicator with three LEDs 24 V DC:
  - LED 1: F-IN1
  - LED 2: F-IN2
  - LED 3: AS-i/FAULT
- Degree of protection IP66/IP67
- 5 directions of approach
- M12 device plugs

## Selection and ordering data

| Version[1] | Contacts | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Enclosure width 31 mm according to EN 50047** | | | | | | | |
| 3SF1214-1QV40-1BA1<br>**With M12 device plug, 4-pole**<br>Channel 1 on NC contact, channel 2 on NC contact<br>• Slow-action contacts | 2 NC | ⊕ | **3SF1214-1QV40-1BA1** | | 1 | 1 unit | 42A |
| **Enclosure width 40 mm according to EN 50041** | | | | | | | |
| 3SF1114-1QV10-1BA1<br>**With M12 device plug, 4-pole**<br>Channel 1 on NC contact, channel 2 on NC contact<br>• Slow-action contacts | 2 NC | ⊕ | **3SF1114-1QV10-1BA1** | | 1 | 1 unit | 42A |
| **Enclosure width 56 mm** | | | | | | | |
| 3SF1124-1QV10-1BA2<br>**With M12 device plug, 4-pole**<br>Channel 1 on NC contact, channel 2 on M12 socket, right<br>• Slow-action contacts | 1 NC | ⊕ | **3SF1124-1QV10-1BA2** | | 1 | 1 unit | 42A |

⊕ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

[1] Supplied without actuator. Please order separately (see page 12/106).

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## Accessories

### Selection and ordering data

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Actuators** | | | | | | |
| | **Standard actuators** | | | | | |
| 3SE5000-0AV01 | • Length 75.6 mm | **3SE5000-0AV01** | | 1 | 1 unit | 41K |
| 3SE5000-0AV02 | • With vertical fixing, length 53 mm | **3SE5000-0AV02** | | 1 | 1 unit | 41K |
| | • With transverse fixing | | | | | |
| 3SE5000-0AV03 | - Length 47 mm | **3SE5000-0AV03** | | 1 | 1 unit | 41K |
| 3SE5000-0AW11 | - Length 40 mm, plastic[1] | **3SE5000-0AW11** | | 1 | 1 unit | 41K |
| | **Radius actuators** | | | | | |
| | • Length 51 mm | | | | | |
| 3SE5000-0AV04 | - Direction of approach from the left | **3SE5000-0AV04** | | 1 | 1 unit | 41K |
| 3SE5000-0AV06 | - Direction of approach from the right | **3SE5000-0AV06** | | 1 | 1 unit | 41K |
| | **Universal radius actuators** | | | | | |
| 3SE5000-0AV05-1AA6 | • Length 77 mm | **3SE5000-0AV05** | | 1 | 1 unit | 41K |
| | - Tab rotated 90° | **3SE5000-0AV05-1AA6** | | 1 | 1 unit | 41K |
| | **Universal radius actuators, heavy duty** | | | | | |
| 3SE5000-0AV07-1AK2 | • Length 67 mm | **3SE5000-0AV07-1AK2** | | 1 | 1 unit | 41K |
| 3SE5000-0AV07 | • Length 77 mm | **3SE5000-0AV07** | | 1 | 1 unit | 41K |
| **Optional accessories** | | | | | | |
| 3SE5000-0AV08-1AA2 | **Protective caps**<br>Made of black rubber,<br>for actuator head, to protect the actuator openings from contamination<br>(only for enclosure width 40 or 56 mm) | **3SE5000-0AV08-1AA2** | | 1 | 1 unit | 41K |
| 3SE5000-0AV08-1AA3 | **Blocking inserts**<br>Made of high-grade steel, for actuator head<br>for up to eight padlocks | **3SE5000-0AV08-1AA3** | | 1 | 1 unit | 41K |

[1] Not suitable for safety switches with tumbler.

Further versions for high-grade steel, see page 12/73.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

The 3SF1 safety switches with safety-related communication can be directly connected using the AS-Interface bus system.
The safety functions no longer have to be wired up conventionally.

With the 3SF1 safety switches the ASIsafe electronics are integrated in the switch enclosure.

3SF1 safety switch with tumbler and with integrated ASIsafe electronics

### *Operation*

The actuator head is included in the scope of supply.
For actuation from four directions it can be adjusted through 4 × 90°. The switches can also be approached from above.

The actuator is not included in the scope of supply of the safety switches and must be ordered separately from a choice of different versions to suit the application (see page 12/106).

The actuator is encoded. Simple overruling by hand or auxiliary devices is impossible.

Locking devices

A high-grade steel blocking insert for attaching up to eight padlocks is available for even more security (see page 12/106).

Dust protection

For use in dusty environments, a protective cap made of rubber is offered that protects the actuator entries of the actuator head from contamination (see page 12/106).

### *Tumbler*

There are two versions for interlocking the actuator:

- Spring-actuated lock (closed-circuit principle) with various release mechanisms
- Solenoid-locked (open-circuit principle)

For more explanations, see page 12/62.

### *Display*

The switches have a status display with four LEDs:

- LED 1 (green): AS-i
- LED 2 (red): FAULT
- LED 3 (yellow): F-IN1
- LED 4 (yellow): F-IN2

### *Connection*

Connection to the AS-Interface is by means of a 4-pole M12 device plug (plastic version) connected to the yellow AS-Interface bus cable (no additional supply of auxiliary power is required thanks to the low current consumption of the solenoid of max. 170 mA).

## Benefits

The 3SF13 safety switches with tumbler provide:

- More safety through higher locking forces:
  - 1 300 N for the plastic version
  - 2 600 N for the metal version
- Various release mechanisms: lock release, escape release and emergency release
- ASIsafe electronics integrated in the enclosure; connected through 4-pole M12 device plug
- Current consumption of the solenoid no more than 170 mA
- Two contact blocks as standard equipment, hence fewer versions needed
- Same dimensions for all enclosure versions: plastic, metal
- An extensive range of actuators
- Status display with four LEDs
- 3SF1324-1S.21-1BK4 series with high degree of protection IP69 according to IEC 60529, cover with foamed seal

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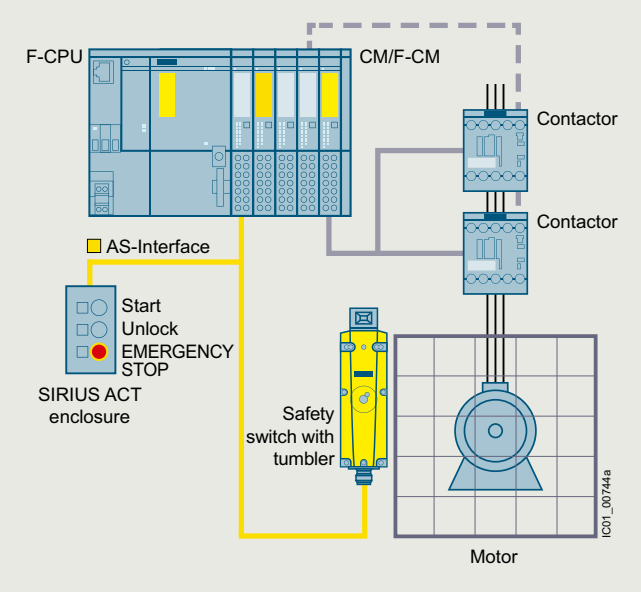
## General data

### Application

The safety switches with tumbler are exceptional safety-related devices which prevent an unforeseen or intentional opening of protective doors, protective grilles or other covers as long as a dangerous situation is present (e.g. follow-on motion of the switched-off machine).

The safety switches with tumbler have the following functions:

- Enabling the machine or process with closed and locked protective device
- Locking the machine or process with opened protective device
- Position monitoring of the protective device and tumbler




Connection to fail-safe control equipment via CM AS-i Safety ST and F-CM AS-i Safety ST

#### *Standards*

The switches comply with IEC 60947-1 (Low-Voltage Switchgear and Controlgear, General) and IEC 60947-5-1 (Electromechanical Control Circuit Devices).

The mechanical design of the switches corresponds to the requirements of the fail-safe principle according to ISO 14119.

#### *Approvals*

AS-Interface according to IEC 62026-2

The switches are approved for use with locking devices according to ISO 14119 and ISO 12100.

3SF13 safety switches with tumbler have a VDE test mark.

The 3SF1 safety switches are approved according to UL 508, UL 50 and UL 746-C.

#### *Safety circuits*

Standard IEC 60947-5-1 requires positive opening of the NC contacts. In other words, for the purposes of personal safety, the assured opening of NC contacts is expressly stipulated for the electrical equipment of machines in all safety circuits and marked according to the standard IEC 60947-5-1 with the symbol ⊖.

With a 3SF13 safety switch with ⊖, SIL 2 according to IEC 62061/IEC 61508 or PL d according to ISO 13849-1 can be attained if the corresponding fail-safe evaluation units are selected from the ASIsafe program and correctly installed.

If a second 3SF1 safety switch with ⊖ is used, SIL 3/PL e can be attained.

#### *Evaluation of safety functions*

Safety Evaluation in the TIA Selection Tool

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.

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## Overview

### *Versions*

- -1BA1: ASIsafe channel 1 on 1 NC contact from the actuator and channel 2 on 1 NC contact from the solenoid
- -1BA3: ASIsafe channel 1 on the first NC contact from the actuator and channel 2 on the second NC contact from the actuator
- -1BA4: ASIsafe channel 1 on 2 NC contact (2-channel) from the actuator, and channel 2 on 1 NC contact from the solenoid. The position switch transfers the information of actuators to a transfer channel because the discrepancy of the two actuator contacts is already evaluated in the switch.

The 3SF1324-1S.21-1BA4 safety switches are also recommended where there are several protective door tumblers and reliable diagnostics and quick restart capability of equipment is required.

- A response is received from the solenoid.
- No opening of the doors required after the solenoid is unlocked.

In connection with an ET 200SP module F-CM AS-i Safety ST, it is possible to achieve SIL 2 according to IEC 62061/IEC 61508 or PL d according to ISO 13849-1. They comply with the standard EN ISO 14119. A TÜV certificate is available.

### *Features*

- Slow-action contacts
- 5 directions of approach
- Solenoid: Rated operational voltage 24 V DC
- 1 300 N locking force
- Degree of protection IP66/IP67, IP69
- Status display with four LEDs 24 V DC:
  - LED 1: AS-i
  - LED 2: FAULT
  - LED 3: F-IN1
  - LED 4: F-IN2
- M12 device plugs

Comparison of versions

| Safety switches<br>Type | Contacts<br>Actuator/solenoid | Achievable safety level | Diagnostics<br>Feedback from the solenoid | Reclosing condition after unlocking the solenoid<br>(depending on the type of evaluation) |
|---|---|---|---|---|
| 3SF1324-1S.21-1BA1 | 1 NC/1 NC | SIL 1/PL c | ✓ | Door does not have to be opened |
| | 1 NC/1 NC | SIL 2/PL d | ✓ | Door must be opened |
| 3SF1324-1S.21-1BA3 | 2 NC/-- | SIL 2/PL d | -- | Door does not have to be opened |
| 3SF1324-1S.21-1BA4 | 2 NC/1 NC | SIL 2/PL d | ✓ | Door does not have to be opened |
| 3SF1324-1S.21-1BK4 (IP69) | 2 NC/1 NC | SIL 2/PL d | ✓ | Door does not have to be opened |

✓ Available -- Not available

## Selection and ordering data

| Tumbler[1] | Contacts Actuator/solenoid | | Complete units Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **1 300 N locking force · Enclosure width 54 mm according to ISO 14119** | | | | | | | |
| 3SF1324-1SD21-1BA1 | | | | | | | |
| ***Spring-actuated locks*** | | | | | | | |
| **With M12 device plug, 4-pole** | | | | | | | |
| • With auxiliary release | 1 NC/1 NC | ➔ | **3SF1324-1SD21-1BA1** | | 1 | 1 unit | 42A |
| | 2 NC/-- | ➔ | **3SF1324-1SD21-1BA3** | | 1 | 1 unit | 42A |
| | 2 NC/1 NC | ➔ | **3SF1324-1SD21-1BA4** | | 1 | 1 unit | 42A |
| - Degree of protection IP69 according to IEC 60529 (IP69 according to DIN 40050) | 2 NC/1 NC | ➔ | **3SF1324-1SD21-1BK4** | | 1 | 1 unit | 42A |
| • With auxiliary release with lock | 1 NC/1 NC | ➔ | **3SF1324-1SE21-1BA1** | | 1 | 1 unit | 42A |
| 3SF1324-1SF21-1BA1 | | | | | | | |
| • With escape release from the front | 1 NC/1 NC | ➔ | **3SF1324-1SF21-1BA1** | | 1 | 1 unit | 42A |
| | 2 NC/1 NC | ➔ | **3SF1324-1SF21-1BA4** | | 1 | 1 unit | 42A |
| - Degree of protection IP69 according to IEC 60529 (IP69 according to DIN 40050) | 2 NC/1 NC | ➔ | **3SF1324-1SF21-1BK4** | | 1 | 1 unit | 42A |
| • With escape release from the back and auxiliary release from the front | 1 NC/1 NC | ➔ | **3SF1324-1SG21-1BA1** | | 1 | 1 unit | 42A |
| | 2 NC/1 NC | ➔ | **3SF1324-1SG21-1BA4** | | 1 | 1 unit | 42A |
| - Degree of protection IP69 according to IEC 60529 (IP69 according to DIN 40050) | 2 NC/1 NC | ➔ | **3SF1324-1SG21-1BK4** | | 1 | 1 unit | 42A |
| • With emergency release from the back and auxiliary release from the front | 1 NC/1 NC | ➔ | **3SF1324-1SJ21-1BA1** | | 1 | 1 unit | 42A |
| 3SF1324-1SB21-1BA1 | | | | | | | |
| ***Solenoid-locked*** | | | | | | | |
| **With M12 device plug, 4-pole** | 1 NC/1 NC | ➔ | **3SF1324-1SB21-1BA1** | | 1 | 1 unit | 42A |
| | 2 NC/-- | ➔ | **3SF1324-1SB21-1BA3** | | 1 | 1 unit | 42A |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

[1] Supplied without actuator. Please order separately. For actuators and optional accessories, see page 12/68.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3SF1, metal enclosures with locking force greater than 2 000 N

### Overview

***Version***

1BA1: ASIsafe channel 1 on 1 NC contact from the actuator and channel 2 on 1 NC contact from the solenoid

***Features***

- Slow-action contacts
- Solenoid: Rated operational voltage 24 V DC
- 2 600 N locking force
- Degree of protection IP66/IP67
- Status display with four LEDs 24 V DC:
  - LED 1: AS-i
  - LED 2: FAULT
  - LED 3: F-IN1
  - LED 4: F-IN2
- M12 device plugs

Comparison of versions

| Safety switches<br>Type | Contacts<br>Actuator/solenoid | Achievable safety level | Diagnostics<br>Feedback from the solenoid | Reclosing condition after unlocking the solenoid<br>(depending on the type of evaluation) |
|---|---|---|---|---|
| 3SF1314-1S.11-1BA1 | 1 NC/1 NC | SIL 1/PL c | ✓ | Door does not have to be opened |
| | 1 NC/1 NC | SIL 2/PL d | ✓ | Door must be opened |

✓ Available

### Selection and ordering data

| Tumbler[1] | Contacts Actuator/solenoid | | Complete units<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **2 600 N locking force · Enclosure width 54 mm according to ISO 14119** | | | | | | | |
| ***Spring-actuated locks*** | | | | | | | |
| **With M12 device plug, 4-pole** | | | | | | | |
| • With auxiliary release | 1 NC/1 NC | ⊖ | **3SF1314-1SD11-1BA1** | | 1 | 1 unit | 42A |
| • With auxiliary release with lock | 1 NC/1 NC | ⊖ | **3SF1314-1SE11-1BA1** | | 1 | 1 unit | 42A |
| 3SF1314-1SD11-1BA1 | | | | | | | |
| • With escape release from the front | 1 NC/1 NC | ⊖ | **3SF1314-1SF11-1BA1** | | 1 | 1 unit | 42A |
| • With escape release from the back and auxiliary release from the front | 1 NC/1 NC | ⊖ | **3SF1314-1SG11-1BA1** | | 1 | 1 unit | 42A |
| • With escape release from the back and auxiliary release with lock from the front | 1 NC/1 NC | ⊖ | **3SF1314-1SH11-1BA1** | | 1 | 1 unit | 42A |
| • With emergency release from the back and auxiliary release from the front | 1 NC/1 NC | ⊖ | **3SF1314-1SJ11-1BA1** | | 1 | 1 unit | 42A |
| 3SF1314-1SF11-1BA1 | | | | | | | |
| ***Solenoid-locked*** | | | | | | | |
| **With M12 device plug, 4-pole** | 1 NC/1 NC | ⊖ | **3SF1314-1SB11-1BA1** | | 1 | 1 unit | 42A |
| 3SF1314-1SB11-1BA1 | | | | | | | |

⊖ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

[1] Supplied without actuator. Please order separately.

For actuators and optional accessories, see page 12/68.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

The 3SF1 safety hinge switches with safety-related communication can be directly connected using the AS-Interface bus system. The safety functions no longer have to be wired up conventionally.

With the 3SF1 hinge switches the ASIsafe electronics are integrated in the switch enclosure.

The hinge switches are provided for mounting on hinges. There are two actuator variants here:
- Hollow shaft, inner diameter 8 mm, outer 12 mm
- Solid shaft, diameter 10 mm

For the ASIsafe version of the hinge switch, the basic switch and actuator head must be ordered separately. The basic switches correspond to the 3SF1 position switches (use only versions with snap-action contacts).

The provisions and approvals are the same as for the 3SF1 standard switches (see page 12/93).

## Selection and ordering data

### *Modular system*

1 or 2 contacts · 3 LEDs · Degree of protection IP65 (31 mm) or IP66/IP67 (50 mm) · M12 device plug

| | Version | Contacts | LEDs | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 31 mm according to EN 50047** | | | | | | | | | |
| 3SF1234-1LC05-1BA1 | ***Rounded plungers***<br>**With M12 device plug, 4-pole**<br>Channel 1 on NC contact, channel 2 on NC contact<br>• Snap-action contacts | 2 NC | 24 V DC | ➔ | **3SF1234-1LC05-1BA1** | | 1 | 1 unit | 42A |
| **Basic switches · Enclosure width 50 mm · Operating points according to EN 50047** | | | | | | | | | |
| 3SF1244-1LC05-1BA2 | ***Rounded plungers***<br>**With M12 device plug, 4-pole**<br>Channel 1 on NC contact, channel 2 on M12 socket, right<br>• Snap-action contacts | 1 NC | 24 V DC | ➔ | **3SF1244-1LC05-1BA2** | | 1 | 1 unit | 42A |
| **Actuator heads** | | | | | | | | | |
| 3SE5000-0AU21 | **With hollow shaft**<br>• Actuating angle 10° | -- | -- | | **3SE5000-0AU21** | | 1 | 1 unit | 41K |
| 3SE5000-0AU22 | **With solid shaft**<br>• Actuating angle 10° | -- | -- | | **3SE5000-0AU22** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.

Accessories, see page 12/49.

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**3SF1, metal enclosures > Enclosure width 31 mm according to EN 50047/40 mm according to EN 50041/56 mm**

## Overview

The 3SF1 safety hinge switches with safety-related communication can be directly connected using the AS-Interface bus system. The safety functions no longer have to be wired up conventionally.

With the 3SF1 hinge switches the ASIsafe electronics are integrated in the switch enclosure.

The hinge switches are provided for mounting on hinges. There are two actuator variants here:
- Hollow shaft, inner diameter 8 mm, outer 12 mm
- Solid shaft, diameter 10 mm

For the ASIsafe version of the hinge switch, the basic switch and actuator head must be ordered separately. The basic switches correspond to the 3SF1 position switches (use only versions with snap-action contacts).

The provisions and approvals are the same as for the 3SF1 standard switches (see page 12/93).

## Selection and ordering data

### *Modular system*

1 or 2 contacts · 3 LEDs · Degree of protection IP66/IP67 · M12 device plug

| Version | Contacts | LEDs | | Modular system<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Basic switches · Enclosure width 31 mm according to EN 50047** | | | | | | | | |
| <br>3SF1214-1LC05-1BA1 | ***Rounded plungers***<br>**With M12 device plug, 4-pole**<br>Channel 1 on NC contact, channel 2 on NC contact<br>• Snap-action contacts | 2 NC | 24 V DC ➔ | **3SF1214-1LC05-1BA1** | | 1 | 1 unit | 42A |
| **Basic switches · Enclosure width 40 mm according to EN 50041** | | | | | | | | |
| <br>3SF1114-1LA00-1BA1 | ***Rounded plungers***<br>**With M12 device plug, 4-pole**<br>Channel 1 on NC contact, channel 2 on NC contact<br>• Snap-action contacts | 2 NC | 24 V DC ➔ | **3SF1114-1LA00-1BA1** | | 1 | 1 unit | 42A |
| **Basic switches · Enclosure width 56 mm** | | | | | | | | |
| <br>3SF1124-1LA00-1BA2 | ***Rounded plungers***<br>**With M12 device plug**, 4-pole<br>Channel 1 on NC contact, channel 2 on M12 socket, right<br>• Snap-action contacts | 1 NC | 24 V DC ➔ | **3SF1124-1LA00-1BA2** | | 1 | 1 unit | 42A |
| **Actuator heads** | | | | | | | | |
| <br>3SE5000-0AU21 | **Hollow shaft**<br>• Actuating angle 10° | -- | -- | **3SE5000-0AU21** | | 1 | 1 unit | 41K |
| <br>3SE5000-0AU22 | **Solid shaft**<br>• Actuating angle 10° | -- | -- | **3SE5000-0AU22** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K, or positively driven actuator, necessary in safety circuits.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

| More information | |
|---|---|
| Homepage, see www.siemens.com/sirius-position-switches<br>Industry Mall, see www.siemens.com/product?3SE | Configuration Manual, see https://support.industry.siemens.com/cs/ww/en/view/43920150 |

3SE66 contact blocks and 3SE67 switching solenoids

A magnetically operated switch comprises a coded switching solenoid and a contact block (sensor unit). The switch must be connected to a safety relay, e.g. SIRIUS 3SK1, or a bus system, e.g. SIMATIC ET 200SP, for evaluation. The switches use reed contacts as mechanical contacts. The status of the contacts is monitored using an evaluation unit.

3SE66 contact blocks and 3SE67 switching solenoids, supplementary range in new design

***Safety relays***

3SK safety relays can be used worldwide since they possess all the required certification. Since they satisfy the highest safety requirements, they are suitable for all kinds of safety applications.

The following can be selected:

- 3SK1 Standard basic units:
  Simple and compact to satisfy all the essential requirements of safety sensor monitoring systems
- 3SK1 Advanced basic units:
  Multifunctional series with relay enabling circuits, semiconductor outputs or time-delayed outputs
- 3SK2 basic units:
  Multifunctional series whose functionality is parameterized using software. The basic units have semiconductor outputs. Relay outputs from the 3SK1 portfolio can also be connected via device connectors.
- Expansion units for inputs and outputs

The 3SE6806 safety relay is also available with two floating enabling circuits (safe circuits) as NO contact circuits and one floating signaling circuit as an NC contact circuit.

## Benefits

***Standard range***

- Non-contact round, rectangular, small (25 mm x 33 mm) and larger (25 mm x 88 mm) versions
- Small, compact, safe
- Simple mounting with alignment of sensor and actuator, and concealed installation also easy
- Suitable for restricted spaces

***Supplementary range***

- Modern design for rectangular shape
- More functionality
- Greater operating distances and a larger horizontal or vertical displacement
- Various mounting positions possible (e.g. at 90° offset)
- SIL 3 and PL e diagnostics possible because there are two safety contacts and one signaling contact
- LED variant
- Fast connection possible using plug-in variants

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## Application

SIRIUS 3SE6 magnetically operated switches are designed for mounting on movable protective guards (e.g. hoods, hinged flaps, doors, etc.). Evaluation can be performed by means of a safety relay or through connection to a bus system.
For more information about the protective door monitoring application, see flyer.

The 3SE66 non-contact, magnetically operated safety switches stand out due to their enclosed design with high degree of protection IP67. Since they are coded, they do not have to be concealed when installed. They are particularly suitable therefore for areas exposed to contamination, cleaning or disinfecting.

A solenoid monitoring system comprises one or more magnetically operated switches and an evaluation unit, e.g. a safety relay.

When contact blocks 1 NO + 1 NC (+ 1 NC signaling contact) or 2 NC (+ 1 NC signaling contact) are used, the 3SK safety relay, for example, provides a high degree of protection against manipulation and can be installed in safety circuits up to SIL 3 according to IEC 62061/IEC 61508 and PL e according to ISO 13849-1.

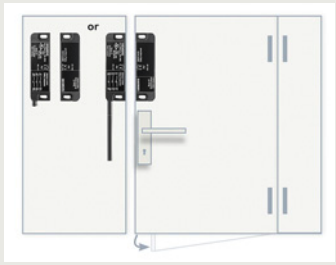
***Evaluation of safety functions***

Safety Evaluation in the TIA Selection Tool

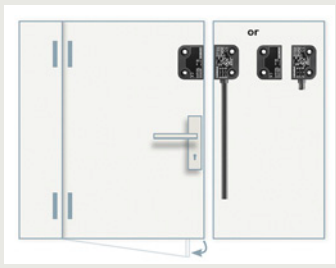
The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.




Non-contact safety magnetically operated switches (with plug or cable) for right-hinged door




Non-contact safety magnetically operated switches (with plug or cable) for left-hinged door

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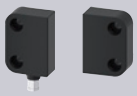
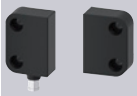
***Combination of monitoring units and magnetically operated switches***

| Monitoring units | | Magnetically operated switches (contact block + switching solenoid) | | | Achievable Safety Integrity Level (IEC 62061/ IEC 61508) Performance Level (ISO 13849-1) |
|---|---|---|---|---|---|
| | | **1 NO + 1 NC**<br>3SE6605-.BA..<br> <br>3SE6704-.BA | **2 NC**<br>3SE6604-2BA..<br>**1 NO + 2 NC**<br>3SE6606-2BA04<br> <br>3SE6704-2BA | -- | |
| | | **1 NO + 1 NC (+ 1 NC signaling contact)**<br>3SE6616-3CA01<br>3SE6626-3CA01<br>  <br>3SE6714-3CA<br>3SE6724-3CA | **2 NC; 2 NC (+ 1 NC signaling contact)**<br>3SE6614-4CA01<br>3SE6624-4CA01<br>3SE6617-2CA01<br>3SE6627-2CA01<br>3SE6617-2CA04<br>3SE6627-2CA04<br> <br>3SE6714-2CA<br>3SE6724-2CA | **2 NC (+ 1 NC signaling contact)**<br>3SE6617-3CA01<br>3SE6627-3CA01<br>3SE6617-3CA04<br>3SE6627-3CA04<br>  <br>3SE6714-3CA<br>3SE6724-3CA | |
| **Relay output** | | | | | |
| **SIRIUS safety relays** | 3SK1121 | ✓ | ✓ | ✓ | SIL 3/PL e |
| **Semiconductor outputs** | | | | | |
| **SIRIUS safety relays** | 3SK1112, 3SK1122 | --/✓ | ✓ | ✓ | SIL 3/PL e |
| | 3SK2112, 3SK2122 | ✓ | ✓ | ✓ | SIL 3/PL e |
| **ASIsafe compact safety modules** | 3RK1205, 3RK1405 | -- | ✓ | ✓ | SIL 3/PL e |
| **SIMATIC S7-1200** | | | | | |
| • F-DI 16 x 24 V DC | 6ES7226-6BA32-0XB0, 6AG1226-6BA32-5XB0 (SIPLUS) | ✓ | ✓ | ✓ | SIL 3/PL e |
| **SIMATIC S7-1500/ET 200MP** | | | | | |
| • F-DI 16 x 24 V DC | 6ES7526-1BH00-0AB0, 6AG1526-1BH00-2AB0 (SIPLUS) | ✓ | ✓ | ✓ | SIL 3/PL e |
| **SIMATIC ET 200SP** | | | | | |
| • F-DI 8 x 24 V DC | 6ES7136-6BA00-0CA0, 6AG1136-6BA00-2CA0 (SIPLUS) | ✓ | ✓ | ✓ | SIL 3/PL e |
| • F-PM-E 24 V DC/8 A PPM | 6ES7136-6PA00-0BC0, 6AG1136-6PA00-2BC0 (SIPLUS) | ✓ | ✓ | ✓ | SIL 3/PL e |
| **SIMATIC ET 200pro** | | | | | |
| • 8/16 F-DI 24 V DC | 6ES7148-4FA00-0AB0 | ✓ | ✓ | ✓ | SIL 3/PL e |
| • 4/8 F-DI 24 V DC + 4 F-DO 24 V DC/2 A | 6ES7148-4FC00-0AB0 | ✓ | ✓ | ✓ | SIL 3/PL e |
| • F-SWITCH | 6ES7148-4FS00-0AB0 | ✓ | ✓ | ✓ | SIL 3/PL e |
| **SIMATIC ET 200eco PN** | | | | | |
| • F-DI 8 x 24 V DC + F-DQ 3 x 24 V DC/2 A | 6ES7146-6FF00-0AB0 | ✓ | ✓ | ✓ | SIL 3/PL e |
| **SIMATIC ET 200AL** | | | | | |
| • F-DI 4 x 24 V DC + F-DQ 2 x 24 V DC/2 A | 6ES7146-5FF00-0BA0 | ✓ | ✓ | ✓ | SIL 3/PL e |

✓ Suitable magnetically operated switch

-- Not available

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## 3SE66, 3SE67 magnetically operated switches

### Selection and ordering data

| | Version | Size | Contacts | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | mm | | | | | | |
| **Standard range – Round sensor units** | | | | | | | | |
| 3SE6704-1BA | **Switching solenoids (coded)** | M30 | -- | **3SE6704-1BA** | | 1 | 1 unit | 41K |
| | **Contact blocks** | | | | | | | |
| 3SE6605-1BA | • With cable 3 m | M30 | 1 NO + 1 NC | **3SE6605-1BA** | | 1 | 1 unit | 41K |
| | • With M12 plug, 4-pole | M30 | 1 NO + 1 NC | **3SE6605-1BA02** | | 1 | 1 unit | 41K |
| **Standard range – Rectangular sensor units** | | | | | | | | |
| 3SE6704-2BA | **Switching solenoids (coded)** | | | | | | | |
| | • Operating distance 5 mm | 25 x 88 | -- | **3SE6704-2BA** | | 1 | 1 unit | 41K |
| | • Operating distance 8 mm | 25 x 88 | -- | **3SE6701-2BA** | | 1 | 1 unit | 41K |
| 3SE660.-2BA | **Contact blocks** | | | | | | | |
| | • With cable 3 m | 25 x 88 | 1 NO + 1 NC | **3SE6605-2BA** | | 1 | 1 unit | 41K |
| | | | 2 NC | **3SE6604-2BA** | | 1 | 1 unit | 41K |
| | | | 1 NO + 2 NC | **3SE6606-2BA04** | | 1 | 1 unit | 41K |
| | • With cable 10 m | 25 x 88 | 1 NO + 1 NC | **3SE6605-2BA10** | | 1 | 1 unit | 41K |
| | | | 2 NC | **3SE6604-2BA10** | | 1 | 1 unit | 41K |
| | • With M8 plug, 4-pole | 25 x 88 | 1 NO + 1 NC | **3SE6605-2BA01** | | 1 | 1 unit | 41K |
| | | | 2 NC | **3SE6604-2BA01** | | 1 | 1 unit | 41K |
| 3SE6704-3BA | **Switching solenoids (coded)** | 25 x 33 | -- | **3SE6704-3BA** | | 1 | 1 unit | 41K |
| | **Contact blocks** | | | | | | | |
| 3SE6605-3BA | • With cable 3 m | 25 x 33 | 1 NO + 1 NC | **3SE6605-3BA** | | 1 | 1 unit | 41K |
| | • With cable 5 m | 25 x 33 | 1 NO + 1 NC | **3SE6605-3BA05** | | 1 | 1 unit | 41K |
| | • With cable 10 m | 25 x 33 | 1 NO + 1 NC | **3SE6605-3BA10** | | 1 | 1 unit | 41K |
| **Supplementary range – Rectangular sensor units for left-hinged door** | | | | | | | | |
| 3SE6714-2CA | **Switching solenoids (coded)** | | | | | | | |
| | • Same level | 25 x 88 | -- | **3SE6714-2CA** | | 1 | 1 unit | 41K |
| | • 90° offset | 25 x 88 | -- | **3SE6724-2CA** | | 1 | 1 unit | 41K |
| 3SE6614-4CA01 | **Contact blocks** | | | | | | | |
| | • With M8 plug, 4-pole, with LED | 25 x 88 | 2 NC | **3SE6614-4CA01** | | 1 | 1 unit | 41K |
| | • ∅ 8 mm, latching connection, plug, 6-pole | 25 x 88 | 2 NC + 1 NC[1)] | **3SE6617-2CA01** | | 1 | 1 unit | 41K |
| | • With cable 3 m | 25 x 88 | 2 NC + 1 NC[1)] | **3SE6617-2CA04** | | 1 | 1 unit | 41K |
| 3SE6714-3CA | **Switching solenoids (coded)** | | | | | | | |
| | • Same level | 26 x 36 | -- | **3SE6714-3CA** | | 1 | 1 unit | 41K |
| | • 90° offset | 26 x 36 | -- | **3SE6724-3CA** | | 1 | 1 unit | 41K |
| 3SE6616-3CA01 | **Contact blocks** | | | | | | | |
| | • ∅ 8 mm, latching connection, plug, 6-pole | 26 x 36 | 1 NO + 1 NC + 1 NC[1)] | **3SE6616-3CA01** | | 1 | 1 unit | 41K |
| | | 26 x 36 | 2 NC + 1 NC[1)] | **3SE6617-3CA01** | | 1 | 1 unit | 41K |
| | • With cable 3 m | 26 x 36 | 2 NC + 1 NC[1)] | **3SE6617-3CA04** | | 1 | 1 unit | 41K |

[1)] The NC is a signaling contact, not a safety contact.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Size | Contacts | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | mm | | | | | | |
| **Supplementary range – Rectangular sensor units for right-hinged door** | | | | | | | | |
| 3SE6714-2CA | **Switching solenoids (coded)** | | | | | | | |
| | • Same level | 25 x 88 | -- | **3SE6714-2CA** | | 1 | 1 unit | 41K |
| | • 90° offset | 25 x 88 | -- | **3SE6724-2CA** | | 1 | 1 unit | 41K |
| 3SE6624-4CA01 | **Contact blocks** | | | | | | | |
| | • With M8 plug, 4-pole, with LED | 25 x 88 | 2 NC | **3SE6624-4CA01** | | 1 | 1 unit | 41K |
| | • ∅ 8 mm, latching connection, plug, 6-pole | 25 x 88 | 2 NC + 1 NC[1)] | **3SE6627-2CA01** | | 1 | 1 unit | 41K |
| | • With cable 3 m | 25 x 88 | 2 NC + 1 NC[1)] | **3SE6627-2CA04** | | 1 | 1 unit | 41K |
| 3SE6714-3CA | **Switching solenoids (coded)** | | | | | | | |
| | • Same level | 26 x 36 | -- | **3SE6714-3CA** | | 1 | 1 unit | 41K |
| | • 90° offset | 26 x 36 | -- | **3SE6724-3CA** | | 1 | 1 unit | 41K |
| 3SE6626-3CA01 | **Contact blocks** | | | | | | | |
| | • ∅ 8 mm, latching connection, plug, 6-pole | 26 x 36 | 1 NO + 1 NC + 1 NC[1)] | **3SE6626-3CA01** | | 1 | 1 unit | 41K |
| | | | 2 NC + 1 NC[1)] | **3SE6627-3CA01** | | 1 | 1 unit | 41K |
| | • With cable 3 m | 26 x 36 | 2 NC + 1 NC[1)] | **3SE6627-3CA04** | | 1 | 1 unit | 41K |
| **Accessories for standard range** | | | | | | | | |
| 3SX3260 | **Spacer** | 25 x 88 | -- | **3SX3260** | | 1 | 1 unit | 41K |
| 3SX3261 | | 25 x 33 | -- | **3SX3261** | | 1 | 1 unit | 41K |
| **Accessories for supplementary range** | | | | | | | | |
| 3SX5600-2GA01 | **Spacer** | 25 x 88 | -- | **3SX5600-2GA01** | | 1 | 1 unit | 41K |
| 3SX5600-2GA02 | | 26 x 36 | -- | **3SX5600-2GA02** | | 1 | 1 unit | 41K |
| 3SX5601-3GA05 | **Connecting cables** Length 5 m | | | | | | | |
| | • With M8 socket, 4-pole | -- | -- | **3SX5601-3GA05** | | 1 | 1 unit | 41K |
| | • With ∅ 8 mm socket, 8 mm latching connection, 6-pole | -- | -- | **3SX5601-4GA05** | | 1 | 1 unit | 41K |
| 3RK1902-4BA00-5AA0 | **M12 plugs, 5-pole** | | | | | | | |
| | • Straight, separate item | -- | -- | **3RK1902-4BA00-5AA0** | | 1 | 1 unit | 42D |
| | • Angled, separate item | -- | -- | **3RK1902-4DA00-5AA0** | | 1 | 1 unit | 42D |

[1)] The second NC is a signaling contact, not a safety contact.

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## 3SE66, 3SE67 magnetically operated switches

| Version | Rated control voltage | Number of sensors | Enabling/ signaling circuits | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Monitoring units** | | | | | | | | |
| ***3SK1 safety relays*** | | | | | | | | |
| **Standard or Advanced basic units** | | | | | | | | |
| • With relay output | 24 V DC | 6[1] | 3 NO/1 NC | **3SK1121-1AB40** | | 1 | 1 unit | 41L |
| • With semiconductor output | 24 V DC | 1 | 2 x F-DQ/1 QM | **3SK1112-1BB40** | | 1 | 1 unit | 41L |

3SK1121-1AB40

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***3SK2 safety relays*** | | | | | | | | |
| **Basic units** | | | | | | | | |
| • With semiconductor output | 24 V DC | 5 | 2 x F-DQ/1 QM | **3SK2112-1AA10** | | 1 | 1 unit | 41L |
| | | 10 | 4 x F-DQ/2 QM | **3SK2122-1AA10** | | 1 | 1 unit | 41L |

3SK2112-1AA10

[1] Only when up to five 3SK1220 input expansion units are used, see page 11/28.

For further monitoring units, see pages 8/1, 9/1 and 11/1.





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

**More information**

Homepage, see www.siemens.com/sirius-position-switches
Industry Mall, see www.siemens.com/product?3SE
Equipment Manual,
see https://support.industry.siemens.com/cs/ww/en/view/52233535

RFID non-contact safety switch with maximum tamper resistance

3SE63 RFID non-contact safety switches comply with the highest safety requirements, SIL 3, for monitoring the positions of movable protective devices.

An RFID safety switch consists of a coded RFID switch with an 8-pole M12 connection plug and an identical RFID actuator.

The switch is available in several versions:

- Family-coded with M12 plug or with additional 18 N magnetic catch as an option
- Individually coded, programmable once, with M12 plug or with additional 18 N magnetic catch as an option
- Individually coded, programmable more than once (an unlimited number of times), with M12 plug or version with additional 18 N magnetic catch

The actuator is therefore available in two versions:

- Standard
- With 18 N magnetic catch

The magnetic catch keeps doors and flaps closed with permanent magnets.

### *Mounting and maintenance*

Various options for mounting save on enclosure variants:

- Mounting of the switch on the right or left side
- The actuator can be mounted on all sides

Quick and easy mounting thanks to universal mounting holes:

- Standard gauge/holes for 3SE6 magnetically operated switches
- Fine adjustment thanks to slotted holes

Little adjustment or maintenance required:

- Threshold indication by LED display on the switch for quick and easy adjustment during mounting and maintenance
- Molded switch allows it to be used as an end stop for small and medium-sized doors

Notes:

- Keep metal parts and cuttings away from the vicinity of the switch
- Minimum distance between two switches 100 mm

### *Optional accessories (mounting)*

- Covers for sealing mounting holes, also suitable for tamper-proofing screw fixings
- Spacers (approx. 3 mm high) to facilitate cleaning under the installation surface when using high-pressure cleaners, for example

### *Coding*

Family-coded

These safety switches are delivered ready to use, i.e. no programming is necessary.

Individually coded, programmable once

The assignment of safety switch and actuator thus created is irreversible.

The actuator is programmed simply by routine during startup, thus permanently preventing any form of tampering by means of a replacement actuator.

Individually coded, programmable several times

Programming procedure:

1. Apply operational voltage to safety sensor

2. Move actuator into detection range:
red LED lights up, yellow LED flashes (1 Hz)

3. After 10 s it changes to a shorter flashing frequency (3 Hz). In this state switch off operational voltage.

4. After the next time the operational voltage is switched on, the actuator is detected again to activate the programmed actuator code. The activated code is thus stored permanently.

The procedure for programming a new actuator can be repeated an unlimited number of times. When a new actuator is programmed the previous code becomes invalid. A protected coding process allows new actuators to be programmed for service purposes.

After this, a ten-minute lockout provides enhanced tamper protection. The green LED flashes until the lockout time has ended and the new actuator has been detected. If the operational voltage is interrupted during this time, the ten-minute guard time is restarted.

### *Diagnostics*

The RFID safety switch indicates its operating state including faults by means of the LED display in the switch and the short-circuit-proof diagnostics output. The signals can then be used for central displays or non-safety-related control tasks.

There are the following diagnostics functions:

- Cross-circuit monitoring
- Open-circuit monitoring
- External voltage monitoring
- Ambient temperature too high
- Wrong or defective actuator
- Operating distance threshold identification with LED display

The signal combination "diagnostics output switched off" and "safety outputs still switched on" can be used to move the machine into a controlled stop position.

Any cross-circuit or a fault that is not currently compromising the safe function of a safety switch results in the disconnection of the safety channels after a 30-minute delay. However, the diagnostics output switches off instantaneously.

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## 3SE63 RFID safety switches

Mode of operation of the diagnostics LEDs

The safety switch indicates not only its operating state, but also faults by means of LEDs in three colors at the ends of the RFID switch.

- The green LED indicates readiness for operation when the control supply voltage is connected.
- The yellow LED indicates that there is an actuator in detection range. If the actuator is in the operating distance threshold, this is indicated by flashing. This flashing can be used to identify a change in the distance between sensor and actuator at an early stage (e.g. as a result of the sagging of a protective door). The installation should be tested before the distance increases further, the safety outputs switch off and the machine stops.
- The red LED indicates the individual causes of the fault by means of defined flashing frequencies.

### Benefits

- Maximum tamper resistance by means of individual coding of switches and actuators at the highest safety level
- Plastic enclosure with integrated plug
- Two solid-state short-circuit-proof safety outputs, each 250 mA
- Integrated cross-circuit, open-circuit and external voltage monitoring, with series circuit as far as the control cabinet
- Safety and diagnostics signals can be connected in series
- Series connection of safety circuits according to SIL 3/PL e
- LED status indication including operating distance threshold indication for quick and easy adjustment during installation and maintenance
- Short-circuit-proof conventional diagnostics output
- Optional version with magnetic catch for interlocking hinge flaps or small doors even when de-energized
- Highly rugged thanks to the use of tested enclosure materials, resistant to aggressive cleaning products, with a degree of protection of up to IP69.
  IP69 does not automatically mean that it can be used outdoors.
  The devices must be installed with corresponding protection for this purpose. UV radiation additionally affects the enclosure.
- Fine adjustment thanks to slotted holes
- Little adjustment or maintenance required
- Molded switch allows it to be used as an end stop for small and medium-sized doors

### Application

RFID non-contact safety switches are designed for use in safety circuits, and are used to monitor the positions of movable protective devices. They monitor the positions of rotating, laterally sliding or removable protective devices using the coded electronic actuator.
For more information about the protective door monitoring application, see flyer.

Their high degree of protection IP69 and the use of cleaning-product-resistant materials means that these switches are optimized for use under extreme environmental conditions.

Their electronic operating principle makes these switches ideal for metalworking machinery.

The switches have a larger operating distance and switching displacement than mechanical switches, improve the mounting tolerance of the protective door, and offer a wide range of diagnostics options.

The RFID switches can be connected to all standard evaluation units suitable for solid-state inputs and in which the built-in cross-circuit monitoring function can be deactivated, e.g.:

| Monitoring units | Type |
|---|---|
| **Relay output** | |
| **SIRIUS safety relays** | 3SK1111-.AB30,<br>3SK1121 |
| **Solid-state outputs** | |
| **SIRIUS safety relays** | 3SK1112,<br>3SK1122,<br>3SK2112,<br>3SK2122 |
| **SIMATIC S7-1200** | |
| • F-DI 16 x 24 V DC | 6ES7226-6BA32-0XB0,<br>6AG1226-6BA32-5XB0 (SIPLUS) |
| **SIMATIC S7-1500/ET 200MP** | |
| • F-DI 16 x 24 V DC | 6ES7526-1BH00-0AB0,<br>6AG1526-1BH00-2AB0 (SIPLUS) |
| **SIMATIC ET 200SP** | |
| • F-DI 8 x 24 V DC | 6ES7136-6BA00-0CA0,<br>6AG1136-6BA00-2CA0 (SIPLUS) |
| • F-PM-E 24 V DC/8 A PPM | 6ES7136-6PA00-0BC0,<br>6AG1136-6PA00-2BC0 (SIPLUS) |
| **SIMATIC ET 200pro** | |
| • 8/16 F-DI 24 V DC | 6ES7148-4FA00-0AB0 |
| • 4/8 F-DI 24 V DC +<br>4 F-DO 24 V DC/2 A | 6ES7148-4FC00-0AB0 |
| • F-SWITCH | 6ES7148-4FS00-0AB0 |
| **SIMATIC ET 200eco PN** | |
| • F-DI 8 x 24 V DC +<br>F-DQ 3 x 24 V DC/2 A | 6ES7146-6FF00-0AB0 |
| **SIMATIC ET 200AL** | |
| • F-DI 4 x 24 V DC +<br>F-DQ 2 x 24 V DC/2 A | 6ES7146-5FF00-0BA0 |

These safety categories can be achieved in safety circuits:

- SIL 3 according to IEC 62061/IEC 61508
- PL e according to ISO 13849-1

### *Evaluation of safety functions*

Safety Evaluation in the TIA Selection Tool

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.

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## Selection and ordering data

With M12 connection plug, 8-pole

| Version | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Rectangular safety switches 3SE63**[1] | | | | | | |
| **RFID safety switch** | | | | | | |
| Actuator 3SE6310 must be ordered separately. | | | | | | |
| • Family-coded | Without catch | **3SE6315-0BB01** | | 1 | 1 unit | 41K |
| | With 18 N magnetic catch | **3SE6315-1BB01** | | 1 | 1 unit | 41K |
| • Individually coded, programmable several times | Without catch | **3SE6315-0BB02** | | 1 | 1 unit | 41K |
| | With 18 N magnetic catch | **3SE6315-1BB02** | | 1 | 1 unit | 41K |
| • Individually coded, programmable once | Without catch | **3SE6315-0BB03** | | 1 | 1 unit | 41K |
| | With 18 N magnetic catch | **3SE6315-1BB03** | | 1 | 1 unit | 41K |
| **RFID actuator** | | | | | | |
| • Standard | Without catch | **3SE6310-0BC01** | | 1 | 1 unit | 41K |
| | With 18 N magnetic catch | **3SE6310-1BC01** | | 1 | 1 unit | 41K |

3SE6315-.BB0.

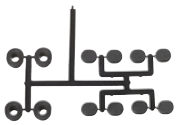
3SE6310-.BC01

[1] Not connectable via AS-i modules.

For monitoring unit, see pages 8/1, 9/1 and 11/1.

## Accessories

| Version | Length | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Optional accessories** | | | | | | |
| **Covers and spacers**<br>One pack (1 unit) contains 8 covers and 4 spacers | -- | **3SX5600-1G** | | 1 | 1 unit | 41K |
| **Connecting cables**<br>With M12 socket, 8-pole, straight, open end, rated voltage 30 V, rated current 2 A | 3 m | **3SX5601-2GA03** | | 1 | 1 unit | 41K |
| | 5 m | **3SX5601-2GA05** | | 1 | 1 unit | 41K |
| | 10 m | **3SX5601-2GA10** | | 1 | 1 unit | 41K |
| | 15 m NEW | **3SX5601-2GA15** | | 1 | 1 unit | 41K |
| **M12 plug**<br>Straight, 8-pole | -- | **6GT2090-0BE00** | | 1 | 5 units | 572 |
| **Adapter cable**[1]<br>With M12 socket, 8-pole on M12 plug 5-pole, for connection, e.g., to fail-safe field modules of SIMATIC ET 200eco PN and SIMATIC ET 200AL | 0.5 m | **3SX5601-3SV00-1AK3** | | 1 | 1 unit | 41K |


3SX5600-1G

3SX5601-2GA03

6GT2090-0BE00

3SX5601-3SV00-1AK3

[1] Extend if necessary with connecting cable 3SX5601-3SV15, length 1 m, see page 12/46.

[2] Suitable for wiring sensors that are connected to all fail-safe block I/O modules in the SIMATIC ET 200eco PN and ET 200AL series. For more information, see page 12/88 onwards.

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## 3SE64 RFID safety switches with tumbler NEW

### Overview

| More information |
|---|
| Homepage, see www.siemens.com/sirius-position-switches |
| Industry Mall, see www.siemens.com/product?3SE |
| Equipment Manual, see https://support.industry.siemens.com/cs/ww/en/view/109808156 |
| Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/view/109811041 |

3SE64 RFID non-contact safety switch with actuator
(right-hand button with escape release)

3SE64 RFID non-contact safety switches comply with the highest safety requirements and tamper protection according to ISO 14119 for monitoring the positions of movable protective devices.

The operating principle using a rotating shaft and star handle is unique. This allows the protective door to be pulled into its end position with almost zero backlash and simultaneous guard locking, even acting as a door stop. No additional door stop is therefore required.

Integrated latching, adjustable from 25 to 50 N with the aid of a star handle, ensures that the protective door remains closed after the tumbler has been released.

The 3SE64 safety switch consists of a coded RFID switch with an 8-pole M12 connection plug and an RFID actuator. They can be ordered family-coded or individually coded (programmable several times).

The two variants differ in the principle by which the guard locking function is activated:

| Version 1 | Version 2 |
|---|---|
| The 3SE6415-1.B0. version operates according to the closed-circuit principle and is spring-locked. | The 3SE6415-1AB0. version operates according to the open-circuit principle and is solenoid-locked. |
| • PL e applies to the interlocking function, corresponding to SIL 3.<br>• PL d applies to the guard locking function, corresponding to SIL 2.<br>• In this version, the tumbler is monitored and consequently the DC required to achieve SIL 2/PL d is reached.<br>• Used to protect personnel | • PL e applies to the interlocking function, corresponding to SIL 3.<br>• In this case, the guard locking function does not have a SIL level or PL level.<br>• Used to protect the process |

One actuator is available for all versions.

A blocking insert protects operating personnel against inadvertently being closed in during maintenance and repair work.

An escape release allows the hazard zone to be exited from the inside if the protective door has accidentally been closed.

#### *Mounting and maintenance*

3SE64 RFID non-contact safety switch with actuators from three directions

- Various options for mounting save on enclosure variants:
  - Mounting of the switch on the right or left side of rotating or sliding doors, simple installation on profile systems
  - Mounting of the actuator from three sides (narrow, front and rear side of the switch), see figure above
- Quick and easy mounting thanks to universal mounting holes
- Little adjustment or maintenance required:
  - Threshold indication by LED display on the switch for quick and easy adjustment during mounting and maintenance
  - Dampers in the actuator allow it to be used as an end stop for small and medium-sized doors

Notes:

- Keep metal parts and cuttings away from the vicinity of the switch
- Minimum distance between two switches 250 mm (depending on the mounting position)

#### *Optional accessories (mounting)*

- Mounting plate for doors so that they are flush with the door frame
- Blocking insert for padlocks to prevent the door from being closed
- Triangular key to unlock the escape release
- Protection plate (masking plate) for the RFID actuator when used on glass and plastic doors
- Connecting cables in various lengths

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### *Coding*

Family-coded

These safety switches are delivered ready to use, i.e. no programming is necessary.

Individually coded, programmable several times

Programming procedure:

1. Apply operational voltage to safety sensor

2. Move actuator into detection range:
red LED lights up, yellow LED flashes (1 Hz)

3. After 10 s it changes to a shorter flashing frequency (3 Hz).
In this state switch off operational voltage.

4. After the next time the operational voltage is switched on, the actuator is detected again to activate the programmed actuator code. The activated code is thus stored permanently.

The procedure for programming a new actuator can be repeated an unlimited number of times. When a new actuator is programmed the previous code becomes invalid. A protected coding process allows new actuators to be programmed for service purposes.

After this, a ten-minute lockout provides enhanced tamper protection. The green LED flashes until the lockout time has ended and the new actuator has been detected. If the operational voltage is interrupted during this time, the ten-minute guard time is restarted.

### *Diagnostics*

The RFID safety switch indicates its operating state including faults by means of the LED display in the switch and the short-circuit-proof diagnostics output. The signals can then be used for central displays or non-safety-related control tasks.

There are the following diagnostics functions:

- Cross-circuit monitoring
- Open-circuit monitoring
- External voltage monitoring
- Ambient temperature too high
- Wrong or defective actuator
- Operating distance threshold identification with LED display

The signal combination "diagnostics output switched off" and "safety outputs still switched on" can be used to move the machine into a controlled stop position.

Any cross-circuit or a fault that is not currently compromising the safe function of a safety switch results in the disconnection of the safety channels after a 30-minute delay. However, the diagnostics output switches off instantaneously.

LED display

3SE64 RFID safety switch with LED display, auxiliary release and 8-pole M12 plug

Simple diagnostics with three colored LEDs:

- Green = Power
- Yellow = Status
- Red = Fault

Mode of operation of the diagnostics LEDs

The safety switch indicates not only its operating state, but also faults by means of LEDs in three colors located in the yellow cover of the RFID switch.

- The green LED indicates readiness for operation when the control supply voltage is connected.
- The yellow LED indicates that there is an actuator in detection range. If the actuator is in the operating distance threshold, this is indicated by flashing. This flashing can be used to identify a change in the distance between sensor and actuator at an early stage (e.g. as a result of the sagging of a protective door). The installation should be tested before the distance increases further, the safety outputs switch off and the machine stops.
- The red LED indicates the individual causes of the fault by means of defined flashing frequencies.

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## 3SE64 RFID safety switches with tumbler NEW

### Benefits

- Maximum or requirements-oriented protection against tampering thanks to RFID technology
- Hygiene-compliant design ideal for food & beverage industries, degree of protection IP69
- Variable options for mounting on rotating or sliding doors, simple installation on profile systems
- Guard locking possible from three sides (three directions of actuation) by means of a star handle
- High actuator tolerances, see Fig. 1:
  - Longitudinal direction ±3.5 mm
  - Transverse direction ±2 mm
- Simple adjustment of latching force:
  By rotating the star handle through 180°, the latching force can be increased from 25 N (position I) to 50 N (position II), see Fig. 2.
- LED display, simple diagnostics with 3-colored LEDs
- Auxiliary release, M12 plug, 8-pole, A-coded, see LED display on page 12/123
- Actuator can be used for a door stop using the integrated damper
- Controlled shutdown process in the event of a cross-circuit: The controller first receives the fault signal, and is only disconnected after 30 minutes.

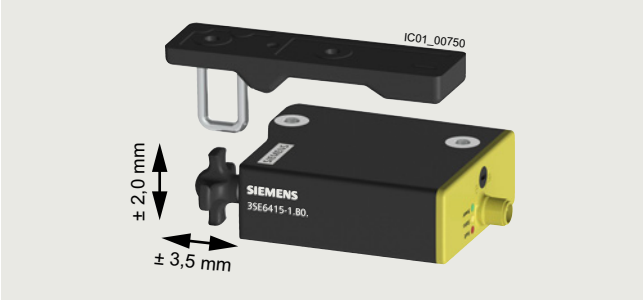



Fig. 1: Actuator tolerance

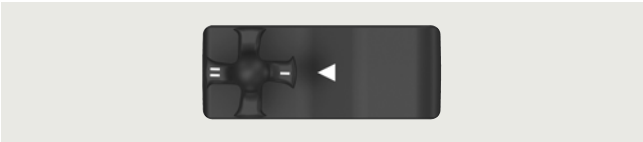


Fig. 2: Star handle for adjustment of latching force

### Application

Whether for grids, covers or doors, rotating, laterally sliding or removable protective devices – safety tumblers ensure that moving guards cannot be opened until dangerous states such as over-travel movements of rollers, chains, shafts, etc. have ended. They are suitable for protecting both the personnel and the process.

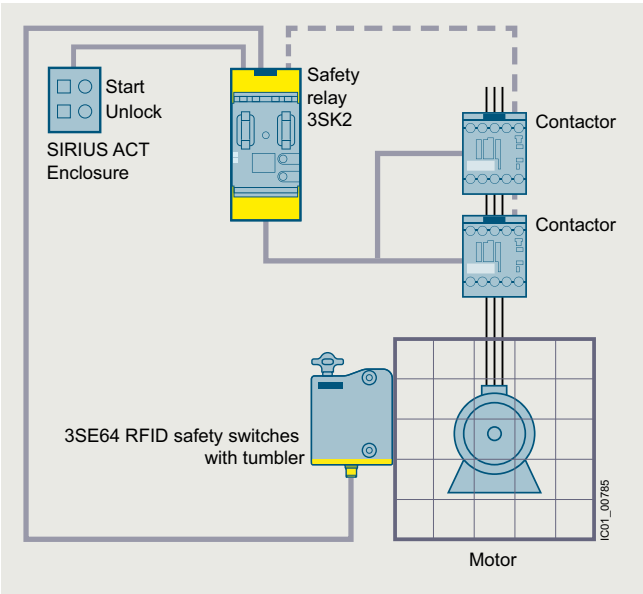
When the protective door is closed and the tumbler locked, the safety outputs are activated.

The actuator design for 3SE64 RFID safety switches with tumbler differs from the 3SE53 mechanical safety switches with tumbler in that it is based on an operating principle involving a rotating shaft and a star handle. The advantage is that, during closing, the protective door is pulled into its end position and kept closed with almost zero backlash. The tumbler can be approached from three sides, making the switch universally deployable.

Thanks to the high degree of protection IP69 and hygienic design, the 3SE64 RFID safety switch is preferred for hygiene-sensitive areas – for example in food production or the packaging and pharmaceutical industry.

The switches have a larger operating distance and switching displacement than mechanical switches, improve the mounting tolerance of the protective door, and offer a wide range of diagnostics options.

Application example




Protective door monitoring with tumbler using 3SE64 RFID safety switch up to SIL 3 or PL e using a 3SK2 safety relay

For a detailed description of this example of how 3SE64 RFID safety switches with tumblers can achieve different SIL/PL levels, see https://support.industry.siemens.com/cs/ww/en/view/109811081.

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The RFID switches can be connected to all standard evaluation units suitable for solid-state inputs and in which the built-in cross-circuit monitoring function can be deactivated, e.g.:

| Monitoring units | Type | | Safety assessment of the | |
|---|---|---|---|---|
| | Version | SIPLUS version | Interlocking function | Guard locking function |
| **Solid-state outputs** | | | | |
| **SIRIUS safety relays** | | | | |
| • 3SK2 | 3SK2112, 3SK2122 | -- | SIL 3/PL e | SIL 2/PL d |
| • 3SK1 | 3SK1111-.AB30, 3SK1112, 3SK112., 3SK1220 | -- | SIL 3/PL e | -- |
| **SIMATIC S7-1200** | | | | |
| • F-DI 16 x 24 V DC | 6ES7226-6BA32-0XB0 | 6AG1226-6BA32-5XB0 | SIL 3/PL e | -- |
| **SIMATIC S7-1500/ET 200MP** | | | | |
| • F-DI 16 x 24 V DC | 6ES7526-1BH00-0AB0 | 6AG1526-1BH00-2AB0 | SIL 3/PL e | -- |
| • F-DQ 8 x 24 V DC/2A PPM | 6ES7526-2BF00-0AB0 | 6AG1526-2BF00-2AB0 | -- | SIL 2/PL d |
| **SIMATIC ET 200SP** | | | | |
| • F-DI 8 x 24 V DC | 6ES7136-6BA00-0CA0 | 6AG1136-6BA00-2CA0 | SIL 3/PL e | -- |
| • F-DQ 8 x 24 V DC/0.5A PP | 6ES7136-6DC00-0CA0 | 6AG1136-6DC00-2CA0 | -- | SIL 2/PL d |
| • F-PM-E 24 V DC/8A | 6ES7136-6PA00-0BC0 | 6AG1136-6PA00-2BC0 | SIL 3/PL e | -- |
| **SIMATIC ET 200pro** | | | | |
| • F-DI 8/16 24 V DC | 6ES7148-4FA00-0AB0 | -- | SIL 3/PL e | -- |
| • F-DI 4/8 24 V DC + 4 F-DQ 24 V DC/2A PM | 6ES7148-4FC00-0AB0 | -- | SIL 3/PL e | -- |
| **SIMATIC ET 200eco PN** | | | | |
| • F-DI 8 x 24 V DC + F-DQ 3 x 24 V DC/2A PM | 6ES7146-6FF00-0AB0 | -- | SIL 3/PL e | -- |
| **SIMATIC ET 200AL** | | | | |
| • F-DI 4 x 24 V DC + F-DQ 2 x 24 V DC/2A PM | 6ES7146-5FF00-0BA0 | -- | SIL 3/PL e | -- |

These safety categories can be achieved in safety circuits:

- SIL 3 according to IEC 62061/IEC 61508
- PL e according to ISO 13849-1

Note:

In order to achieve the maximum achievable safety level (SIL 2 or PL d) of the guard locking function of the 3SE64 RFID safety switch, fail-safe PP-switching outputs of the safety relay or fail-safe controller must be used. When the tumbler of the 3SE64 is connected to standard SIMATIC output modules (DQ) and to fail-safe SIMATIC output modules with the PM switching principle (F-DQ PM-switching), no safety level (SIL or PL) can be reached. In this case, the guard locking function of the 3SE64 can only be used to protect the process.

***Evaluation of safety functions***

Safety Evaluation in the TIA Selection Tool

The safety evaluation for the standards IEC 62061 and ISO 13849-1 is performed quickly and easily, directly in the TIA Selection Tool. In addition to the fast and safe calculation of machine safety functions – from the definition of the system structure to the selection of components – this enables shared data management during all project phases. Take the next step in the digital design of machinery and equipment with Safety Evaluation in the TIA Selection Tool.

In addition, the functionalities of the proven Safety Evaluation Tool are still available. It determines the achieved safety integrity (SIL/PL) step-by-step. You receive the results as a standards-compliant report that can be integrated in the documentation as proof of safety.

For more information, see www.siemens.com/safety-evaluation.

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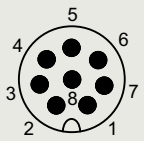
## 3SE64 RFID safety switches with tumbler NEW

### Technical specifications

| Type | | 3SE6415 |
|---|---|---|
| **General data** | | |
| **Standards** | | IEC 60947-5-3, IEC 62061/IEC 61508, ISO 14119, ISO 13849-1 |
| **Enclosure material** | | Plastic, glass-fiber reinforced thermoplastic, self-extinguishing |
| **Ambient temperature** | | |
| • During operation | °C | 0 … +60 |
| • During storage, transport | °C | -10 ... +90 |
| **Shock resistance** | | 30 *g*/11 ms |
| **Vibration resistance** | | 10 ... 150 Hz/ amplitude 0.35 mm |
| **Operating principle** | | RFID |
| **Coding level according to ISO 14119** | | |
| • Individually coded, programmable several times | | High |
| • Family-coded | | Low |
| **Series connection** | | Number of devices unlimited, ensure external line protection |
| **Length of sensor chain** | | Max. 200 m (cable length and cable cross-section change the voltage drop in relation to the output current) |
| **Mechanical data** | | |
| **Locking force $F_{Zh}$** | N | 1 150 |
| **Latching force** | N | 25 or 50 |
| **Mechanical endurance** | Operating cycles | ≥ 1 000 000 |
| **Connection type** | | Integrated socket M12, 8-pole, A-coded |
| **Degree of protection** | | IP66, IP67, IP69 according to IEC 60529 |
| **Safety assessment of the interlocking function** | | |
| **Standards** | | ISO 13489-1, IEC 62061/IEC 61508 |
| **PL** | | Up to e |
| **Category** | | Up to 4 |
| **PFHD at high demand rate** | | $5.2 \times 10^{-10}$/h |
| **$PFD_{avg}$ at low demand rate** | | $4.5 \times 10^{-5}$ |
| **SIL** | | Suitable for applications in SIL 3 |
| **Mission time** | Years | 20 |
| **Safety assessment of the guard locking function** | | |
| **Standards** | | ISO 13489-1, IEC 62061/IEC 61508 |
| **PL** | | Up to d |
| **Category** | | Up to 2 |
| **PFHD at high demand rate** | | $2.0 \times 10^{-9}$/h |
| **$PFD_{avg}$ at low demand rate** | | $4.5 \times 10^{-4}$ |
| **SIL** | | Suitable for applications in SIL 2 |
| **Mission time** | Years | 20 |

### *Pin assignment*

**M12 device plugs, 8-pole**




| | | | |
|---|---|---|---|
| 1 | WH = White | → | A1 |
| 2 | BN = Brown | → | X1 |
| 3 | GN = Green | → | A2 |
| 4 | YE = Yellow | → | OSSD1 |
| 5 | GY = Grey | → | OUT |
| 6 | PK = Pink | → | X2 |
| 7 | BU = Blue | → | OSSD2 |
| 8 | RD = Red | → | IN |

IC03_31010

12

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## Selection and ordering data

Plastic enclosures · With M12 connection plug, 8-pole · Locking force 1 150 N

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| | **3SE64 RFID safety systems switches with tumbler** [1] | | | | | |
| 3SE6415-1.B0. | Three LEDs for displaying the operating states (24 V DC), three directions of actuation, latching force adjustable with star handle: 25 N or 50 N, actuator 3SE6410 must be ordered separately. | | | | | |
| | • Closed-circuit principle with auxiliary release (tumbler monitored) | | | | | |
| | - Family-coded | **3SE6415-1BB01** | | 1 | 1 unit | 41K |
| | - Individually coded, programmable several times | **3SE6415-1BB02** | | 1 | 1 unit | 41K |
| | • Open-circuit principle with auxiliary release (actuator monitored) | | | | | |
| | - Family-coded | **3SE6415-1AB01** | | 1 | 1 unit | 41K |
| | - Individually coded, programmable several times | **3SE6415-1AB02** | | 1 | 1 unit | 41K |
| 3SE6415-1CB01 | • Closed-circuit principle with escape release (tumbler monitored), lever handle included as separate item, can be mounted on either side | | | | | |
| | - Family-coded | **3SE6415-1CB01** | | 1 | 1 unit | 41K |
| | **RFID actuator** | | | | | |
| 3SE6410-1AC01 | With stainless steel bracket, can be used as door stop | **3SE6410-1AC01** | | 1 | 1 unit | 41K |

[1] Not connectable via AS-i modules.

Monitoring units, see from pages 8/1, 9/1 and 11/1 onwards.

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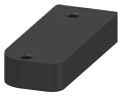
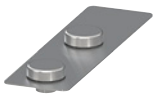
## Accessories

| | Version | Length | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | | m | | | | | |
| **Optional accessories** | | | | | | | |
|  3SX5600-1F | **Mounting plate**<br>For doors so that they are flush with the door frame<br>To compensate for the height between the safety switch and the RFID actuator | -- | **3SX5600-1F** | | 1 | 1 unit | 41K |
| 3SX5600-2F | **Blocking inserts**<br>This is inserted into the actuator bracket to prevent the door from closing.<br>For 1 to 6 padlocks<br>(not included in the scope of supply),<br>shackle diameter max. 6 mm | -- | **3SX5600-2F** | | 1 | 1 unit | 41K |
| 3SX5600-3F | **Triangular keys**<br>For safety switches 3SE6415-1CB01<br>To unlock the escape release when the red lever is missing. | -- | **3SX5600-3F** | | 1 | 1 unit | 41K |
|  3SX5600-4F | **Protection plate (masking plate)**<br>For the RFID actuator 3SE6410-1AC01<br>For use on glass and plastic doors on machinery,<br>Material: Aluminum,<br>Aluminum thread heads with M6-Thread including rubber washers | -- | **3SX5600-4F** | | 1 | 1 unit | 41K |
| 3SX5601-2GA03 | **Connecting cables**<br>With M12 socket, 8-pole,<br>straight, open end,<br>rated voltage 30 V,<br>rated current 2 A | 3<br>5<br>10<br>15 | **3SX5601-2GA03**<br>**3SX5601-2GA05**<br>**3SX5601-2GA10**<br>**3SX5601-2GA15** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41K<br>41K<br>41K<br>41K |
| 3RK1902-4BA00-5AA0 | **M12 plugs, 5-pole**<br>• Straight, separate item<br>• Angled, separate item | <br>--<br>-- | <br>**3RK1902-4BA00-5AA0**<br>**3RK1902-4DA00-5AA0** | | <br>1<br>1 | <br>1 unit<br>1 unit | <br>42D<br>42D |
| 6GT2090-0BE00 | **M12 plug, 8-pole**<br>Straight | -- | **6GT2090-0BE00** | | 1 | 5 units | 572 |
| 3SX5601-3SV18 | **Connecting cable**<br>With M12 socket, 8-pole and M12 plug, 8-pole | 1 | **3SX5601-3SV18** | | 1 | 1 unit | 41K |

12



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Price groups**
PG 41J, 41K, 42C, 42K, 343

13/2 **Introduction**

**SIRIUS ACT pushbuttons and indicator lights**
13/6 General data
Actuators and indicators, 22 mm, round, plastic, black
13/23 Complete units
13/32 Compact units
13/34 Actuating and signaling elements
Actuators and indicators, 22 mm, metal, shiny
13/47 Complete units
13/55 Compact units
13/57 Actuating and signaling elements
Actuators and indicators, flat, 30 mm, metal, matte
13/70 Actuating and signaling elements
Actuators and indicators, customized designs
13/74 Special locks
13/75 Laser inscriptions
Holders
13/76 Holders without module
13/77 Holders with module
Modules
13/79 Contact modules
13/84 LED modules
13/88 AS-Interface modules
13/89 Solid-state modules for IO-Link
13/90 Solid-state modules for ID key-operated switches
13/91 Modules for PROFINET
13/92 Support terminals
Enclosures
13/93 General data
13/94 Empty enclosures
13/95 Pushbuttons and indicator lights in the enclosure
13/100 Pushbuttons and indicator lights in the enclosure for AS-Interface
13/103 Pushbuttons and indicator lights in the enclosure for IO-Link
13/104 Pushbuttons and indicator lights in the enclosure for connection to SIMATIC ET 200
13/106 Two-hand operation consoles

Accessories
Labels
13/107 - Insert labels
13/110 - Label holders for labeling plates
13/112 - Labeling plates
13/119 - Labeling plates for enclosures
13/123 - Labels for laser printers
13/124 - Other labels
13/127 Protection/Access protection
13/133 Actuators
13/136 Enclosures
13/138 Miscellaneous accessories

**SIRIUS 3SB2 pushbuttons and indicator lights, 16 mm**
13/140 General data
13/143 Complete units
13/145 Actuating and signaling elements
13/147 Contact blocks and lampholders
Accessories and spare parts
13/149 Insert labels and insert caps
13/153 Backing plates
13/154 Mounting parts and components

**SIRIUS 3SE7 cable-operated switches**
13/156 3SE7 metal enclosures
13/159 Accessories

**SIRIUS 3SE2, 3SE3 foot switches**
13/161 Plastic and metal enclosures

**SIRIUS 8WD4 signaling columns**
13/163 Electronically configurable 8WD46 signaling columns, 70 mm diameter NEW
8WD42 and 8WD44 signaling columns
13/170 General data
13/173 8WD42 signaling columns, 50 mm diameter
13/175 8WD44 signaling columns, 70 mm diameter

**SIRIUS 8WD5 integrated signal lamps**
13/180 8WD53 integrated signal lamps, 70 mm diameter


13/17 Note:
SIRIUS ACT pushbuttons and indicator lights can also be ordered in practical, environment-friendly multi-unit packaging.
Example:
3SU1000-1AA10-0AA0-Z X90; pack of 50
3SU1500-0AA10-0AA0-Z X05; pack of 5

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## Introduction

### Overview

| | 3SU1.0 | | |
|---|---|---|---|
| **Pushbuttons and indicator lights** | | | |
| **Designs** | | | |
| Nominal diameter | 22 mm | | |
| Version | Plastic | | |
| **Actuators** | Complete units | Compact units | Actuating/ signaling elements |
| Pushbuttons | ✓ see p. 13/23 | -- | ✓ see p. 13/34 |
| Illuminated pushbuttons | ✓ see p. 13/23 | -- | ✓ see p. 13/35 |
| Mushroom pushbuttons | ✓ see p. 13/25 | -- | ✓ see p. 13/37 |
| EMERGENCY STOP mushroom pushbuttons | ✓ see p. 13/26 | -- | ✓ see p. 13/38 |
| Selector switches | ✓ see p. 13/28 | -- | ✓ see p. 13/40 |
| Key-operated switches | ✓ see p. 13/29 | -- | ✓ see p. 13/42 |
| ID key-operated switches | -- | -- | ✓ see p. 13/44 |
| Twin pushbuttons | -- | -- | ✓ see p. 13/36 |
| Quadruple pushbuttons | -- | -- | ✓ see p. 13/36 |
| Toggle switches | -- | -- | ✓ see p. 13/39 |
| Coordinate switches | ✓ see p. 13/30 | -- | ✓ see p. 13/45 |
| Sensor switches | -- | ✓ see p. 13/32 | -- |
| Potentiometers | -- | ✓ see p. 13/32 | -- |
| Pushbuttons with extended stroke | -- | ✓ see p. 13/33 | -- |
| **Indicators** | | | |
| Indicator lights | ✓ see p. 13/31 | -- | ✓ see p. 13/45 |
| Indicator lights in illuminated pushbutton design | -- | -- | ✓ see p. 13/45 |
| Acoustic signaling devices | -- | ✓ see p. 13/32 | -- |
| **Modules** | | | |
| Contact modules | ✓ see p. 13/79 to 13/83 | | |
| LED modules | ✓ see p. 13/84 to 13/87 | | |
| AS-Interface modules | ✓ see p. 13/88 | | |
| Solid-state modules for IO-Link | ✓ see p. 13/89 | | |
| Solid-state modules for ID key-operated switches | ✓ see p. 13/90 | | |
| Modules for PROFINET | ✓ see p. 13/91 | | |
| Support terminals | ✓ see p. 13/92 | | |
| **Connections** | | | |
| Screw terminals | ✓ | ✓ | ✓ |
| Spring-loaded terminals | ✓ | -- | ✓ |
| Solder pins | -- | -- | ✓ |
| AS-Interface | ✓ | -- | ✓ |
| IO-Link | -- | -- | ✓ |
| PROFINET | -- | -- | ✓ |

✓ Available

-- Not available

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| | 3SU1.5 | | | 3SU1.6 | | | 3SB2 |
|---|---|---|---|---|---|---|---|
| **Pushbuttons and indicator lights** | | | | | | | |
| **Designs** | | | | | | | |
| Nominal diameter | 22 mm | | | 30 mm | | | 16 mm |
| Version | Metal, shiny | | | Metal, matte, flat | | | Plastic, round |
| **Actuators** | Complete units | Compact units | Actuating/ signaling elements | Complete units | Compact units | Actuating/ signaling elements | |
| Pushbuttons | ✓ see p. 13/47 | -- | ✓ see p. 13/57 | -- | -- | ✓ see p. 13/70 | ✓ see p. 13/145 |
| Illuminated pushbuttons | ✓ see p. 13/47 | -- | ✓ see p. 13/58 | -- | -- | ✓ see p. 13/70 | ✓ see p. 13/145 |
| Mushroom pushbuttons | ✓ see p. 13/49 | -- | ✓ see p. 13/60 | -- | -- | -- | -- |
| EMERGENCY STOP mushroom pushbuttons | ✓ see p. 13/50 | -- | ✓ see p. 13/61 | -- | -- | -- | ✓ see p. 13/145 |
| Selector switches | ✓ see p. 13/52 | -- | ✓ see p. 13/63 | -- | -- | ✓ see p. 13/71 | ✓ see p. 13/145 |
| Key-operated switches | ✓ see p. 13/53 | -- | ✓ see p. 13/66 | -- | -- | ✓ see p. 13/72 | ✓ see p. 13/146 |
| Twin pushbuttons | -- | -- | ✓ see p. 13/59 | -- | -- | -- | -- |
| Toggle switches | -- | -- | ✓ see p. 13/63 | -- | -- | -- | -- |
| Coordinate switches | ✓ see p. 13/53 | -- | ✓ see p. 13/68 | -- | -- | -- | -- |
| Potentiometers | -- | ✓ see p. 13/55 | -- | -- | -- | -- | |
| Pushbuttons with extended stroke | -- | ✓ see p. 13/56 | -- | -- | -- | -- | -- |
| **Indicators** | | | | | | | |
| Indicator lights | ✓ see p. 13/54 | -- | ✓ see p. 13/68 | -- | -- | ✓ see p. 13/72 | ✓ see p. 13/144 |
| Acoustic signaling devices | -- | ✓ see p. 13/55 | -- | -- | -- | -- | -- |
| **Modules** | | | | | | | |
| Contact modules | ✓ see p. 13/79 to 13/83 | | | | | | |
| LED modules | ✓ see p. 13/84 to 13/87 | | | | | | |
| Wedge bases | -- | -- | -- | -- | -- | -- | ✓ see p. 13/154 |
| AS-Interface modules | ✓ see p. 13/88 | | | | | | |
| Solid-state modules for IO-Link | ✓ see p. 13/89 | | | | | | |
| Solid-state modules for ID key-operated switches | ✓ see p. 13/90 | | | | | | |
| Modules for PROFINET | ✓ see p. 13/91 | | | | | | |
| Support terminals | ✓ see p. 13/92 | | | | | | |
| **Connections** | | | | | | | |
| Plug-in connection | -- | -- | -- | -- | -- | -- | ✓ |
| Screw terminals | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| Spring-loaded terminals | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| Solder pins | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| AS-Interface | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| IO-Link | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | -- |
| PROFINET | -- | -- | ✓ | -- | -- | ✓ | -- |

✓ Available

-- Not available

Note:

Safety characteristics, see page 16/9.

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## Introduction

| | 3SU18 | 3SU18 | 3SE7 | 3SE29, 3SE39 |
|---|---|---|---|---|
| | **Enclosures** | **Two-hand operation consoles** | **Cable-operated switches** | **Foot switches** |
| **Enclosures** | | | | |
| Plastic | ✓ | ✓ | -- | ✓ |
| Metal | ✓ | ✓ | ✓ | ✓ |
| **Actuators** | | | | |
| Pushbuttons | ✓ | -- | ✓ | ✓ |
| Illuminated pushbuttons | | -- | -- | -- |
| Mushroom pushbuttons | ✓ | ✓ | -- | -- |
| EMERGENCY STOP mushroom pushbuttons | ✓ | ✓ | ✓ | -- |
| Selector switches | ✓ | -- | -- | -- |
| Key-operated switches | ✓ | -- | -- | -- |
| Cable-operated switches | -- | -- | ✓ | -- |
| **Indicators** | | | | |
| Indicator lights | ✓ | -- | ✓ | -- |
| Acoustic signaling devices | ✓ | -- | -- | -- |
| **Modules** (see p. 13/83 to 13/92) | | | | |
| 1-pole/2-pole | ✓/-- | ✓ | --/✓ | --/✓ |
| 3-pole/4-pole | -- | -- | ✓ | ✓ |
| **Connections** | | | | |
| Screw terminals | ✓ | ✓ | ✓ | ✓ |
| AS-Interface | ✓ | -- | -- | -- |
| IO-Link | ✓ | -- | -- | -- |
| PROFINET | ✓ | -- | -- | -- |
| Pages | see p. 13/93 | see p. 13/106 | see p. 13/156 | see p. 13/161 |

✓ Available

-- Not available

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| | | | | |
|---|---|---|---|---|
| | **8WD46** | **8WD42** | **8WD44** | **8WD53** |
| | **Signaling columns** | | | **Integrated signal lamps** |
| | **Electronically configurable** | **Mechanically modular** | | |
| **Enclosures** | | | | |
| Plastic | ✓ | ✓ | | ✓ |
| **Illumination** | | | | |
| Incandescent lamps | -- | ✓ | | ✓ |
| Multi-color LED (RGB-LED) | ✓ | -- | | -- |
| LEDs | -- | ✓ | | ✓ |
| Flashlights | -- | ✓ | | ✓ |
| **Connections** | | | | |
| Screw terminals | -- | ✓ | | ✓ |
| Spring-loaded terminals | -- | ✓ | | -- |
| M12 plugs | ✓ | -- | | -- |
| **Communication** | | | | |
| AS-Interface | -- | ✓ | ✓ | -- |
| IO-Link | ✓ | -- | ✓ | -- |
| Standard (without communication) | ✓ | ✓ | ✓ | ✓ |
| **Functions** | | | | |
| Continuous lights | ✓ | ✓ | ✓ | ✓ |
| Blinklights | ✓ | ✓ | ✓ | ✓ |
| Flashlights | ✓ | ✓ | ✓ | ✓ |
| Rotating lights | ✓ | ✓ | ✓ | ✓ |
| Level indicators | ✓ | -- | -- | -- |
| Acoustics | | | | |
| • Buzzer | -- | ✓ | ✓ | -- |
| • Siren | ✓ | -- | ✓ | -- |
| Pages | see p. 13/163 onwards | see p. 13/170 ... 13/174 | see p. 13/170 ... 13/172, 13/175 | see p. 13/180 onwards |

✓ Available

-- Not available

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## Overview

SIRIUS ACT pushbuttons and indicator lights

***SIRIUS ACT – commanding and signaling***

SIRIUS ACT is a modular system of pushbuttons and indicator lights for front plate mounting and rear-mounted electrical modules. Thanks to SIRIUS ACT with PROFINET, commanding and signaling devices can be connected directly via PROFINET to the controller and HMI devices – including with safety functions. Engineering and commissioning are simplified by the TIA Portal.

Extensive portfolio

- Customized versions, e.g. special locks, inscriptions, equipped enclosures
- Communication-capable thanks to direct interfacing to AS-Interface, IO-Link or PROFINET

Diverse possible applications

- National and international approvals
- Many trade approvals
- Short delivery times thanks to global availability

Standards

- IEC 60947-1
- IEC 60947-5-1
- IEC 60947-5-5 for EMERGENCY STOP devices

**More information**

Homepage, see www.siemens.com/sirius-act
Industry Mall, see www.siemens.com/product?3SU1
Configurator, see www.siemens.com/sirius-act/configurator
Conversion tool, see www.siemens.com/conversion-tool
System Manual, see https://support.industry.siemens.com/cs/ww/en/view/107542462
TIA Portal, see www.siemens.com/TIA
TIA Selection Tool Cloud (TST Cloud), see www.siemens.com/tstcloud/?node=SiriusActConfigurator

Video: SIRIUS ACT - Teaser trailer

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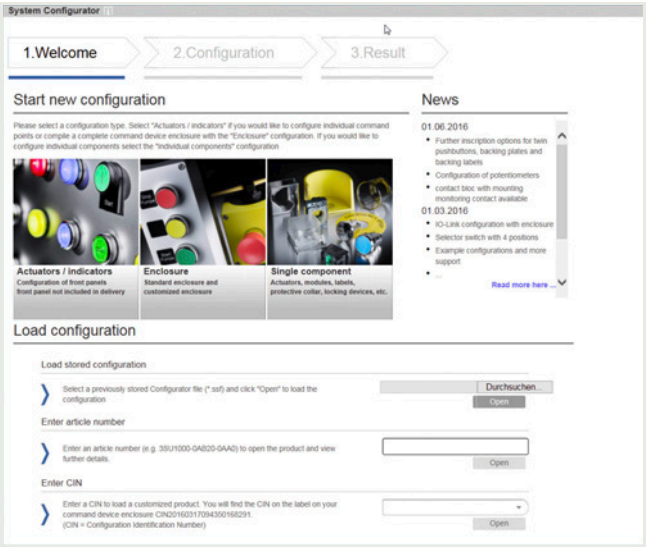
***Configurator***




- Fast and simple selection by intuitive navigation through clearly-organized menus using drag & drop
- Image preview of selected components
- Inscription of pushbuttons and labeling plates using the interactive inscription tools
- Once created, a configuration can be ordered as often as required using the customer-specific article number and the CIN (Configuration Identification Number)
- Everything at a glance: Product data sheets, certificates, dimensional drawings, list prices, inscription tool

Video: SIRIUS ACT - Configurator

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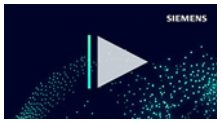
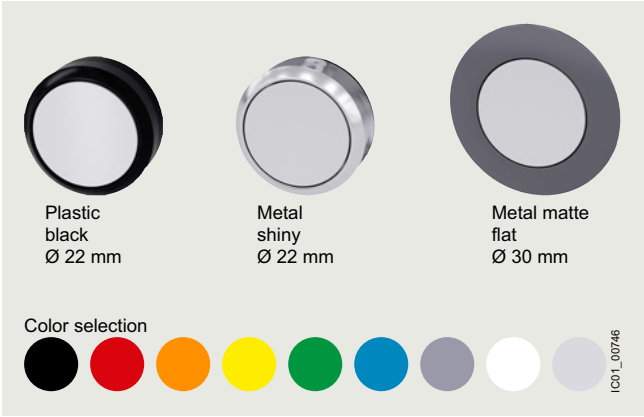
## General data

### Benefits

#### *Design*

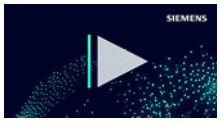


Video: SIRIUS ACT - Design




SIRIUS ACT is available in three design lines.

#### *Ruggedness*



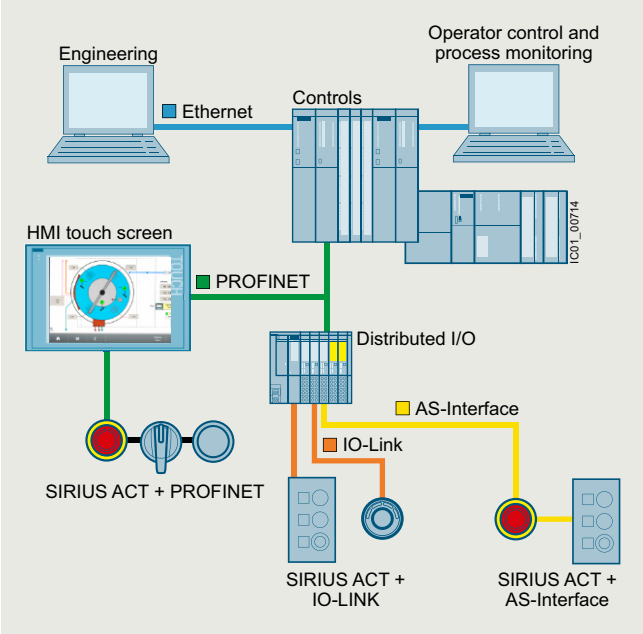
Video: SIRIUS ACT - Ruggedness

- Degree of protection IP66, IP67, IP69 (IP69K)

| IP66 | |
|---|---|
| 6 = Protection against the ingress of dust | 6 = Protection against powerful splashwater |
| **IP67** | |
| 6 = Protection against the ingress of dust | 7 = Protection against temporary immersion |
| **IP69 (IP69K)** | |
| 6 = Protection against the ingress of dust | 9 (9K) = Protection against water in high-pressure cleaning (approx. 80 bar) and high water jet temperatures (approx. 80 °C) |

- Service life of 100 000 hours thanks to use of LEDs
- Media resistance (chemicals) thanks to solid stainless steel and high-grade plastics
- Mechanical endurance of 10 x $10^6$ operating cycles
- Suitable for use in extreme environments
- Reliable, friction-locked fixing with just one screw
- Design stability according to use
- Simple geometry for mounting holes

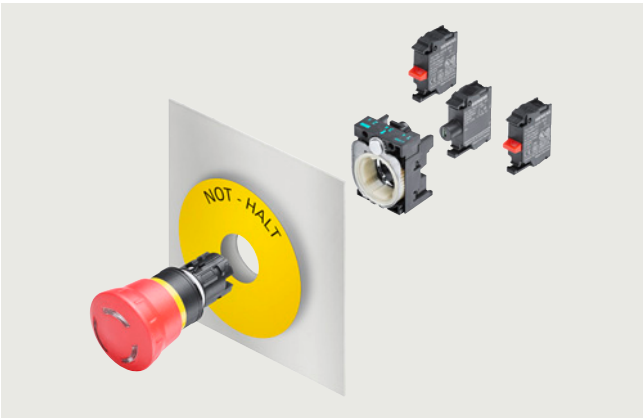
#### *Communication*




- Direct connection of the enclosure to AS-Interface or IO-Link
- Direct connection in the control cabinet to PROFINET, IO-Link or AS-Interface
- Can be integrated easily via the TIA Portal

#### *Simple installation*

Video: SIRIUS ACT – Installation




- Self-holding function of the actuator when mounting
- Twist prevention integrated into patented holder design
- Stackable contact modules
- Self-explanatory and fast installation using one hand
- Components can be mounted with holder removed
- No special tools required, simple size 2 screwdriver (cross-tip ISO 87641PZD1, flat-head ISO 2380-1 A/B 1x4.5) is sufficient

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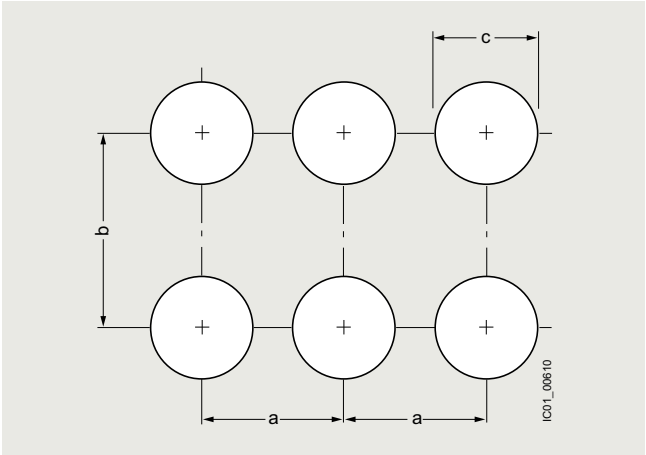
### *Mounting dimensions*




| Version | Minimum clearance | | |
|---|---|---|---|
| | a | b | c |
| | mm | mm | mm |
| **22 mm, plastic, black<br>22 mm, metal, shiny<br>For front panel thickness 1 ... 6 mm** | | | |
| 3-slot holder | 30 | 40 | $22.3^{+0.4}$ |
| 4-slot holder | 40 | 40 | $22.3^{+0.4}$ |
| **30 mm, metal, matte<br>For front panel thickness 1 ... 4 mm** | | | |
| 3-slot holder | 40 | 45 | $30.5^{+0.5}$ |

### *Versions*

SIRIUS ACT is a modular system of pushbuttons and indicator lights with which customized versions can be configured flexibly.

One command point comprises:

- An actuating or signaling element in front of the control panel
- A holder for securing behind the control panel
- Up to six contact modules and/or one LED module (mounted on the holder), 1-pole contacts can be stacked
- A comprehensive range of accessories for inscription/marking

Complete units

Complete units made up of an actuating or signaling element, holder and contact modules and/or LED modules are offered for the most frequent application cases. The electrical parts are integrated and only have to be wired.

Compact units

Signaling devices, sensor switches, pushbuttons with extended stroke and potentiometers are available as compact units. The electronic circuitry is already integrated in these devices, i.e. it is not necessary to snap on a contact or LED module.

| Complete units | Pages | Compact units | Pages |
|---|---|---|---|
| Plastic, black | 13/23 | Plastic, black | 13/32 |
| Metal, shiny | 13/47 | Metal, shiny | 13/55 |

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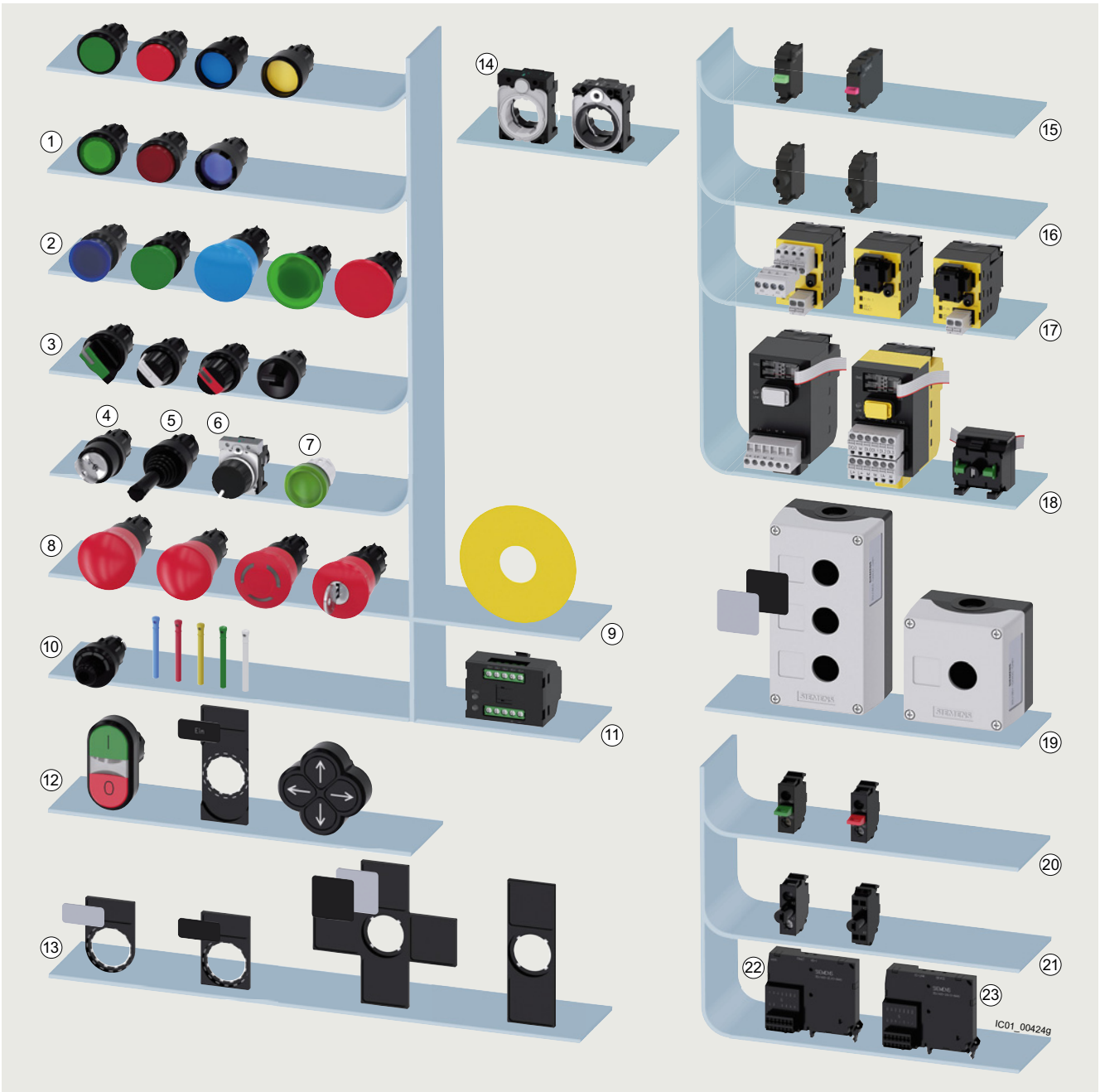
## General data

***Actuating and signaling elements***




System overview of SIRIUS ACT pushbuttons and indicator lights from the plastic design line, pushbuttons and indicator lights available in three design lines.

| Actuating and signaling elements | | Pages |
|---|---|---|
| ① | Pushbuttons, illuminated pushbuttons | 13/23 |
| ② | Mushroom pushbuttons | 13/25 |
| ③ | Selector switches, toggle switches | 13/39, 13/40 |
| ④⑤ | Key-operated switches, coordinate switches | 13/42, 13/45 |
| ⑥⑦ | Potentiometers, indicator lights | 13/32, 13/45 |
| ⑧⑨ | EMERGENCY STOP mushroom pushbuttons, backing plates | 13/26 |
| ⑩ | ID key-operated switches, ID keys | 13/44 |
| ⑪ | Solid-state modules for ID key-operated switches | 13/90 |
| ⑫ | Twin pushbuttons, label holders, labeling plates, quadruple pushbuttons | 13/36 |

| Holders and labels | | Pages |
|---|---|---|
| ⑬ | Label holders, labeling plates | From 13/110 |
| ⑭ | Holders | From 13/76 |

| Modules for front plate mounting | | Pages |
|---|---|---|
| ⑮ | Contact modules | From 13/79 |
| ⑯ | LED modules | From 13/84 |
| ⑰ | AS-Interface modules | 13/88 |
| ㉓ | Solid-state modules for IO-Link | 13/89 |
| ⑱ | Modules for PROFINET: Interface modules, fail-safe interface modules, terminal modules | 13/91 |

| Enclosures | | Pages |
|---|---|---|
| ⑲ | Enclosures | From 13/93 |

| Modules for base mounting | | Pages |
|---|---|---|
| ⑳ | Contact modules | From 13/83 |
| ㉑ | LED modules | From 13/86 |
| ㉒ | AS-Interface modules | 13/88 |
| ㉓ | Solid-state modules for IO-Link | 13/89 |

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***SIRIUS ACT with PROFINET***

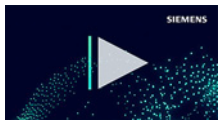
SIRIUS ACT with PROFINET connects pushbuttons and indicator lights directly via PROFINET to the controller and HMI devices – including with Safety functions.

With this solution designed for the control panel, up to 21 SIRIUS ACT devices can be connected to the controller via PROFINET. Integration of the EMERGENCY STOP mushroom pushbutton (SIL 3/PL e) is possible via PROFIsafe.

Non-SIRIUS ACT devices, e.g. position switches, can additionally be connected via the open, digital/analog interfaces (DI, DQ, AI).

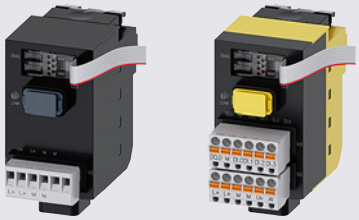
The system is entirely integrated into TIA Portal and does not require any further addressing apart from the IP address for PROFINET.

Quick and easy installation with flat cables without special tools saves significantly on wiring outlay.



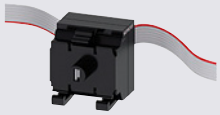

Video: SIRIUS ACT, Communication/PROFINET

## Interface modules/fail-safe interface modules



| | | |
|---|---|---|
| **Interface modules for PROFINET**, 24 V DC<br>1 to 20 terminal modules can be connected | **3SU1400-1L□10-□AA1** | See page 13/91 |

## Terminal modules

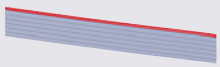


| | | |
|---|---|---|
| **Terminal modules with two contacts** | **3SU1400-1MA□0-1□A1** | See page 13/91 |
| **Terminal modules with two contacts and integrated LED** | **3SU1401-1MC□0-1□A1** | |
| **Terminal modules with integrated LED** | **3SU1401-1ME□0-1□A1** | |

## Accessories

| | | |
|---|---|---|
| **Memory modules**<br>For backing up the complete parameterization of the safety system without a PC/PG through the system interface | **3RK3931-0AA00** | See page 13/91 |

| | | |
|---|---|---|
| **LED modules for mounting on printed circuit boards** | **3SU1401-3BA□0-5AA0** | See page 13/87 |



| | | |
|---|---|---|
| **Flat ribbon cable** | | |
| 7 cores, length 5 m | **3SU1900-0KQ80-0AA0** | See page 13/139 |
| 7 cores, length 10 m | **3SU1900-0KP80-0AA0** | |

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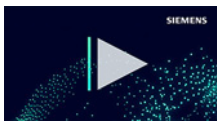
## General data

### *ID key-operated switches*

Groups of employees or individuals can be authenticated by means of the ID key-operated switch. The ID key-operated switch is electronic and has four switch positions that are selected by keys with different codes. Using the four ID keys with different codes, it is possible to select 1 to 4 positions. The ID keys are color-coded (yellow, blue, red, green, white) so that they can be clearly differentiated at a glance and used flexibly thanks to four function levels.




Video: SIRIUS ACT ID key-operated switches

RFID authentication solutions

Groups of employees or individuals can be authenticated by means of the ID key-operated switch. Color-coded keys for easy distinction between users.

Different versions of ID key-operated switches are available depending on the following features:

- Front ring material
- Conventional version: 1 + 4 non-isolated outputs
- Version with IO-Link: Option of individual coding

Operation:
Insert ID key, turn key to select the position. Standard keys can also be used in conjunction with the solid-state module for ID key-operated switches with IO-Link function. The white ID key is supplied without coding.

| | | | |
|---|---|---|---|
| | **3SU1000-4WS10-0AA0**<br>**Plastic, black** | **3SU1500-0AA10-0AA0**<br>**Holder, plastic** | **3SU1550-0AA10-0AA0**<br>**Holder, universal** |
| **ID key-operated switches** | | | |
| **Number of switching positions** | 4 | | |
| **Actuating angle** | 45° | | |
| **Operating principle** | Latching | | |
| **Switch position for key removal** | Key removal possible in all four positions | | |
| **Color** | Black | | |
| **Pages** | 13/44 | | |

| | | |
|---|---|---|
| | **3SU1400-1GC10-1AA0** | **3SU1400-1GD10-1AA0** |
| **Solid-state modules for ID key-operated switches** | | |
| **Type of power supply** | -- | Via IO-Link master |
| **Protocol is supported** | -- | IO-Link protocol |
| **Number of NO contacts** | 5 | 5 |
| **IO-Link transfer rate** | -- | COM2 (38.4 kBaud) |
| **Pages** | 13/90 | 13/90 |

| | | |
|---|---|---|
| | **3SU1900-0FU60-0AA0**<br>**ID keys ID group individual** | **3SU1900-0FV40-0AA0**<br>**3SU1900-0FW30-0AA0**<br>**3SU1900-0FX20-0AA0**<br>**3SU1900-0FY50-0AA0**<br>**ID keys** |
| **ID keys** | | |
| **Material** | Plastic | Plastic |
| **Version of RFID coding** | Individually coded, programmable several times | ID group 1<br>ID group 2<br>ID group 3<br>ID group 4 |
| **Color** | White | Green<br>Yellow<br>Red<br>Blue |
| **Pages** | 13/135 | 13/135 |

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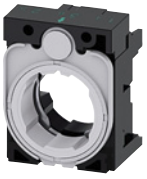
***Article number schemes***

Device types



| 3SU10 | 3SU11 | 3SU12 | 3SU14 | 3SU15 | 3SU18 | 3SU19 |
|---|---|---|---|---|---|---|
| **Device types** | | | | | | |
| **Actuating and signaling elements** | **Complete units** | **Compact units** | **Modules for actuators and indicators** | **Holders with module** | **Enclosures** | **Accessories** |

Actuating and signaling elements

| **Product versions** | | **Article number** |
|---|---|---|
| **SIRIUS ACT pushbuttons and indicator lights** | | **3SU1** □□□– □ □□□□– □□□□ |
| Device type | Actuating and signaling elements | **0** |
| Material (front ring) | Plastic, black<br>Metal, shiny<br>Metal, matte | **0**<br>**5**<br>**6** |
| Illumination | Non-illuminated<br>Illuminated/transparent<br>Illuminated/non-illuminated | **0**<br>**1**<br>**2** |
| Type of actuator/indicator | Pushbutton<br>Mushroom pushbutton/EMERGENCY STOP mushroom pushbutton/sensor switch<br>Selector switch<br>Twin pushbutton, toggle switch, quadruple pushbutton<br>Key-operated switch<br>Indicator light/acoustic signaling device<br>Coordinate switch | **0**<br>**1**<br>**2**<br>**3**<br>**4/5**<br>**6**<br>**7** |
| Design of the actuator/lock | e.g. A = Flat | □ |
| Function | e.g. B = Momentary contact | □ |
| Color/key removal position | e.g. 10 = Black, 20 = Red | □□ |
| Connection type | None | **0** |
| Module/holder equipment | e.g. A = Without module, without holder | □ |
| Marking | e.g. A = None, C = "I", D = "O", R = "R" | □ |
| Ambient condition | Standard<br>ATEX Zone 1-2: Intrinsic safety | **0**<br>**2** |
| **Example** | | **3SU1 0 0 0 – 0 A B 1 0 – 0 A A 0** |

Note:

The article number scheme shows an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## General data

Complete units

| Product versions | | Article number |
|---|---|---|
| **SIRIUS ACT pushbuttons and indicator lights** | | **3SU1** □□□ – □ □□□□ – □□□□ |
| Device type | Complete units | **1** |
| Material (front ring) | Plastic, black<br>Metal, shiny<br>Metal, matte | **0**<br>**5**<br>**6** |
| Illumination | Non-illuminated<br>Illuminated (with/without LED, various voltages) | **0**<br>**1**<br>**...**<br>**8** |
| Type of actuator/indicator | Pushbutton<br>Mushroom pushbutton/EMERGENCY STOP mushroom pushbutton/sensor switch<br>Selector switch<br>Twin pushbutton, toggle switch<br>Key-operated switch<br>Indicator light/acoustic signaling device<br>Coordinate switch | **0**<br>**1**<br>**2**<br>**3**<br>**4/5**<br>**6**<br>**7** |
| Design of the actuator/lock | e.g. A = Flat | □ |
| Function | e.g. B = Momentary contact | □ |
| Color/key removal position | e.g. 10 = Black, 20 = Red | □□ |
| Connection type | Screw terminals<br>Spring-loaded terminals | **1**<br>**3** |
| Module/holder equipment including contact material | e.g.<br>A = Without module, with holder<br>B = 1 NO contact with holder<br>C = 1 NC contact with holder | □ |
| Marking | e.g. A = None, C = "I", D = "O", R = "R" | □ |
| Ambient condition | Standard<br>ATEX Zone 1-2: Intrinsic safety | **0**<br>**2** |
| **Example** | | **3SU1 1 0 0 – 0 A B 1 0 – 1 B A 0** |

Compact units

| Product versions | | Article number |
|---|---|---|
| **SIRIUS ACT pushbuttons and indicator lights** | | **3SU1** □□□ – □ □□□□ – □□□□ |
| Device type | Compact units | **2** |
| Material (front ring) | Plastic, black<br>Metal, shiny<br>Metal, matte | **0**<br>**5**<br>**6** |
| Illumination | Non-illuminated<br>Illuminated/non-illuminated | **0**<br>**1** |
| Type of actuator/indicator | Pushbutton<br>Sensor switch<br>Potentiometer<br>Acoustic signaling device | **0**<br>**1**<br>**2**<br>**6** |
| Design of the actuator/lock | e.g. A = Flat | □ |
| Function (voltage/resistance) | e.g. B = 24 V AC/DC | □ |
| Color | e.g. 10 = Black, 20 = Red | □□ |
| Connection type | None<br>Screw terminals<br>M12 connection, 4-pole<br>Spring-loaded terminals | **0**<br>**1**<br>**2**<br>**3** |
| Module/holder equipment including contact material | e.g.<br>A = Without module, without holder<br>B = 1 NO contact with holder<br>C = 1 NC contact with holder | □ |
| Marking | e.g. A = None | □ |
| Ambient condition | Standard<br>ATEX Zone 1-2: Intrinsic safety | **0**<br>**2** |
| **Example** | | **3SU1 2 0 1 – 6 A B 1 0 – 1 A A 0** |

Note:

The article number schemes show an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## Modules for actuators and indicators

| Product versions | | Article number | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SIRIUS ACT pushbuttons and indicator lights** | | **3SU1** | □ | □ | □ | – | □ | □ | □ | □ | □ | – | □ | □ | □ | □ |
| Device type | Modules for actuators and indicators | | **4** | | | | | | | | | | | | | |
| Material (front ring) | Plastic, black | | | **0** | | | | | | | | | | | | |
| Illumination | Non-illuminated | | | | **0** | | | | | | | | | | | |
| | Illuminated | | | | **1** | | | | | | | | | | | |
| Mounting type | Front plate mounting | | | | | | **1** | | | | | | | | | |
| | Base mounting | | | | | | **2** | | | | | | | | | |
| | Printed circuit board | | | | | | **3** | | | | | | | | | |
| Module type | Contact module | | | | | | | **A** | | | | | | | | |
| | LED module | | | | | | | **B** | | | | | | | | |
| | LED test module | | | | | | | **C** | | | | | | | | |
| | Support terminal | | | | | | | **D** | | | | | | | | |
| | AS-Interface module | | | | | | | **E** | | | | | | | | |
| | Solid-state module for ID key-operated switches | | | | | | | **G** | | | | | | | | |
| | Interface modules for PROFINET | | | | | | | **L** | | | | | | | | |
| | Terminal modules | | | | | | | **M** | | | | | | | | |
| Function/voltage | e.g. B = 24 V AC/DC | | | | | | | | □ | | | | | | | |
| Color | e.g. 10 = Black, 20 = Red | | | | | | | | | □ | □ | | | | | |
| Connection type | Screw terminals | | | | | | | | | | | | **1** | | | |
| | Screw terminals + insulation piercing method | | | | | | | | | | | | **2** | | | |
| | Spring-loaded terminals | | | | | | | | | | | | **3** | | | |
| | Spring-loaded terminals + insulation piercing method | | | | | | | | | | | | **4** | | | |
| | Socket terminals | | | | | | | | | | | | **5** | | | |
| Module equipment including contact material | e.g.<br>A = None<br>B = 1 NO contact, silver<br>C = 1 NC contact, silver | | | | | | | | | | | | | □ | | |
| Marking | None | | | | | | | | | | | | | | **A** | |
| Ambient condition | Standard | | | | | | | | | | | | | | | **0** |
| | ATEX Zone 1-2: Intrinsic safety | | | | | | | | | | | | | | | **2** |
| **Example** | | **3SU1** | **4** | **0** | **0** | **–** | **1** | **A** | **A** | **1** | **0** | **–** | **1** | **B** | **A** | **0** |

## Holders

| Product versions | | Article number | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SIRIUS ACT pushbuttons and indicator lights** | | **3SU1** | □ | □ | □ | – | □ | □ | □ | □ | □ | – | □ | □ | □ | □ |
| Device type | Holders | | **5** | | | | | | | | | | | | | |
| Material (front ring) | Plastic, black | | | **0** | | | | | | | | | | | | |
| | Metal, shiny | | | **1** | | | | | | | | | | | | |
| | Universal for plastic and metal | | | **5** | | | | | | | | | | | | |
| Illumination | Non-illuminated | | | | **0** | | | | | | | | | | | |
| | Illuminated | | | | **1** | | | | | | | | | | | |
| Mounting type | None | | | | | | **0** | | | | | | | | | |
| | Front plate mounting | | | | | | **1** | | | | | | | | | |
| Holder type | 3x A | | | | | | | **A** | | | | | | | | |
| | 4x B | | | | | | | **B** | | | | | | | | |
| Function/voltage | None | | | | | | | | **A** | | | | | | | |
| | 6 ... 24 V AC/DC | | | | | | | | **G** | | | | | | | |
| Color | e.g. 10 = Black, 20 = Red | | | | | | | | | □ | □ | | | | | |
| Connection type | None | | | | | | | | | | | | **1** | | | |
| | Screw terminals | | | | | | | | | | | | **2** | | | |
| Module equipment including contact material and slot | e.g.<br>A = None<br>B = 1 NO contact, silver<br>C = 1 NC contact, silver | | | | | | | | | | | | | □ | | |
| Marking | None | | | | | | | | | | | | | | **A** | |
| Ambient condition | Standard | | | | | | | | | | | | | | | **0** |
| | ATEX Zone 1-2: Intrinsic safety | | | | | | | | | | | | | | | **2** |
| **Example** | | **3SU1** | **5** | **0** | **0** | **–** | **0** | **A** | **A** | **1** | **0** | **–** | **0** | **A** | **A** | **0** |

Note:

The article number schemes show an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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## General data

Enclosures

| Product versions | | Article number |
|---|---|---|
| **SIRIUS ACT pushbuttons and indicator lights** | | **3SU1** □□□ – □□□□□□ – □□□□ |
| Device type | Enclosures | **8** |
| Material (enclosure/front ring) | Plastic, black plastic<br>Metal, shiny metal | **0**<br>**5** |
| Number of command points | Command point<br>...<br>Command points | **1**<br>**...**<br>**6** |
| Type of enclosure | Surface mounting<br>4-position selector switch and coordinate switch<br>Palm pushbutton<br>Two-hand operation console | **0**<br>**1**<br>**2**<br>**3** |
| Equipment | e.g. command point, inscription, module | □□ |
| Communication capability | None<br>AS-i | **0**<br>**1** |
| Ambient condition | Standard<br>ATEX Zone 1-2: Intrinsic safety | **0**<br>**2** |
| Mounting/connection of modules | None<br>Front plate mounting, screw terminals<br>Base mounting, screw terminals<br>Front mounting, spring-loaded terminals<br>Base mounting, spring-loaded terminals | **0**<br>**1**<br>**2**<br>**3**<br>**4** |
| Cable exit from enclosure | None<br>Direct entry of AS-i flat cable at top/on right<br>AS-i insulation piercing method at top/on right | **A**<br>**G**<br>**H** |
| Design of enclosure top | Center command point<br>With recess for labeling plate<br>With protective collar<br>4 additional holes (two-hand operation console)<br>8 additional premachined breaking points<br>(two-hand operation console) | **A**<br>**B**<br>**C**<br>**D**<br>**E** |
| Color of enclosure top | Gray<br>Yellow | **1**<br>**2** |
| **Example** | | **3SU1 8 0 1 – 0 A A 0 0 – 0 A A 2** |

Accessories

| Product versions | | Article number |
|---|---|---|
| **SIRIUS ACT pushbuttons and indicator lights** | | **3SU1** □□□ – □□□□□□ – □□□□ |
| Device type | Accessories | **9** |
| Material | Plastic, black<br>Metal, shiny<br>Metal, matte | **0**<br>**5**<br>**6** |
| Illumination | Non-illuminated<br>Illuminated | **0**<br>**1** |
| Type of accessory (labels, protection, actuator, enclosure) | e.g. 0AB = Insert label | □□□ |
| Color | e.g. 10 = Black, 20 = Red | □□ |
| Marking | e.g.<br>0AA = None<br>0AB = ON<br>0AT = EMERGENCY STOP | □□□ |
| Ambient condition | Standard<br>ATEX Zone 1-2: Intrinsic safety | **0**<br>**2** |
| **Example** | | **3SU1 9 0 0 – 0 A B 2 0 – 0 A B 0** |

Note:

The article number schemes show an overview of product versions for better understanding of the logic behind the article numbers.

For your orders, please use the article numbers quoted in the selection and ordering data.

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***Ordering notes for multi-unit packaging***

SIRIUS ACT pushbuttons and indicator lights can also be ordered in various types of practical, environment-friendly multi-unit packaging.

Multi-unit packaging with order code X90

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code **X90** must be specified.

Ordering example:

3SU1000-0AB20-0AA0-Z X90; purchase order quantity 100 units
→ Delivery of one package containing 100 units

Examples of multi-unit packaging with order code X90

| SIRIUS ACT pushbuttons and indicator lights | Multi-unit, quantity per package<br>X90 |
|---|---|
| Complete units (3SU11) | 20 |
| Compact units (3SU12) | |
| • Acoustic signaling devices, pushbuttons with extended stroke, potentiometers | 50 |
| Actuating and signaling elements (3SU10) | |
| • Pushbuttons, illuminated pushbuttons, indicator lights | 100 |
| • Stop switches, twin pushbuttons, mushroom pushbuttons 30/40 mm, EMERGENCY STOP mushroom pushbuttons 30/40 mm, toggle switches, selector switches, key-operated switches, ID key-operated switches, coordinate switches | 50 |
| • Mushroom pushbuttons 60 mm, EMERGENCY STOP mushroom pushbuttons 60 mm | 40 |
| Holders without module (3SU15) | 100 |
| Modules for actuators and indicators (3SU14) | |
| • Contact modules | 150 |
| • LED modules | 50 |
| Enclosures (3SU18) | |
| • Empty plastic enclosures | |
| - 3SU1801-0AA00-0AA2, 3SU1801-0AA00-0AB1 | 24 |
| - 3SU1801-0AA00-0AC2 | 18 |
| Accessories (3SU19) | |
| • Sealing plugs, label holders, EMERGENCY STOP backing plates, labeling plates for potentiometers, EMERGENCY STOP labeling plates for enclosures without recesses and without inscription, single frames, dust caps for key-operated switches, adapters for DIN-rail mounting, protective collars for EMERGENCY STOP mushroom pushbuttons (40 mm, for 5 padlocks, yellow) | 100 |
| • Labeling plates | 150 |

Multi-unit packaging with order code X05

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code **X05** must be specified.

Ordering example:
3SU1500-0AA10-0AA0-Z X05; purchase order quantity 5 units
→ Delivery of one package containing 5 units

Examples of multi-unit packaging with order code X05

| SIRIUS ACT pushbuttons and indicator lights | Multi-unit, quantity per package<br>X05 |
|---|---|
| Holders without module (3SU15) | |
| • Plastic: 3SU1500-0AA10-0AA0 | 5 |
| • Metal: 3SU1510-0AA10-0AA0 | 5 |
| • Universal for plastic and metal: 3SU1550-0AA10-0AA0 | 5 |
| Modules for actuators and indicators (3SU14) | |
| • Contact modules for front plate mounting | 5 |
| - Screw terminals: 3SU1400-1AA10-1BA0, 3SU1400-1AA10-1CA0 | |
| - Spring-loaded terminals: 3SU1400-1AA10-3BA0, 3SU1400-1AA10-3CA0 | |
| • LED modules for front plate mounting | 5 |
| - Screw terminals:<br>3SU1401-1BB00-1AA0, 3SU1401-1BB20-1AA0, 3SU1401-1BB30-1AA0,<br>3SU1401-1BB40-1AA0, 3SU1401-1BB50-1AA0, 3SU1401-1BB60-1AA0 | |
| - Spring-loaded terminals:<br>3SU1401-1BB00-3AA0, 3SU1401-1BB20-3AA0, 3SU1401-1BB30-3AA0,<br>3SU1401-1BB40-3AA0, 3SU1401-1BB50-3AA0, 3SU1401-1BB60-3AA0 | |
| • LED modules for base mounting | 5 |
| - Screw terminals:<br>3SU1401-2BB00-1AA0, 3SU1401-2BB20-1AA0, 3SU1401-2BB30-1AA0,<br>3SU1401-2BB40-1AA0, 3SU1401-2BB50-1AA0, 3SU1401-2BB60-1AA0 | |
| - Spring-loaded terminals:<br>3SU1401-2BB00-3AA0, 3SU1401-2BB20-3AA0, 3SU1401-2BB30-3AA0,<br>3SU1401-2BB40-3AA0, 3SU1401-2BB50-3AA0, 3SU1401-2BB60-3AA0 | |

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## General data

### Application

#### *Environmental conditions*

The pushbuttons and indicator lights are climate-proof (KTW 24) and suitable for standard industrial applications and operation in marine applications.

#### *Simple electrical equipment*

Non-illuminated actuators, contact modules, enclosures and special accessories can be classified as simple electrical equipment according to IEC 60079-11. This means that they may be used in intrinsically safe circuits and in potentially explosive atmospheres. An overview of the devices and atmospheres can be found in Confirmation No. 3287.01.

#### *Safety EMERGENCY STOP according to ISO 13850*

For controls according to IEC 60204-1, the SIRIUS ACT mushroom pushbuttons are suitable for use as a safety EMERGENCY STOP.

#### *Safety circuits*

Standard IEC 60947-5-1 requires positive opening.
This means that for the purpose of personal safety, the reliable opening of NC contacts in all safety circuits is expressly prescribed for the electrical equipment of machines and is designated according to IEC 60947-5-1 with the symbol (⊖).

PL e according to ISO 13849-1 can be attained with the EMERGENCY STOP mushroom pushbuttons if the corresponding fail-safe evaluation units are selected and correctly installed, e.g. the 3SK safety relays (see page 11/1 onwards) or matching units from the ASIsafe, SIMATIC or SINUMERIK product ranges.

### Technical specifications

| More information | |
|---|---|
| Industry Mall, see www.siemens.com/product?3SU1 | Conversion tool, see www.siemens.com/conversion-tool |
| Configurator, see www.siemens.com/sirius-act/configurator | System Manual, see https://support.industry.siemens.com/cs/ww/en/view/107542462 |

| Type | | **3SU1..0-.AA<br>3SU1..0-.JA** | **3SU1..1-.AA<br>3SU1..1-.JA** | **3SU1..0-.AB<br>3SU1..0-.BB<br>3SU1..0-.CB<br>3SU1..0-.DB<br>3SU1..0-.JB** | **3SU1..1-.AB<br>3SU1..1-.BB<br>3SU1..1-.JB** | **3SU10.0-.FB** |
|---|---|---|---|---|---|---|
| Product designation | | **Pushbuttons** | | | | |
| **Operating principle of the actuating element** | | Latching | | Momentary contact | | |
| **Optional expansion of product by light source** | | No | Yes | No | Yes | No |
| **Mechanical endurance (operating cycles) typical** | | 500 000 | | 10 000 000 | 3 000 000 | 200 000 |
| **Frequency of operation, maximum** | 1/h | 1 800 | | 3 600 | | |
| **Shock resistance** according to IEC 60068-2-27 | | Half-sine wave 15 *g*/11 ms | | | | |
| **Vibration resistance** according to IEC 60068-2-6 | | 10 ... 500 Hz: 5 *g* | | | | |
| **Degree of protection IP** | | IP66, IP67, IP69 (IP69K) | | | | IP65, IP66 |
| **Environmental category during operation** according to IEC 60721 | | 3M6, 3S2, 3B2, 3C3, 3K6 (with a relative air humidity of 10 ... 95%) | | | | |
| **Ambient temperature** | | | | | | |
| • During operation | °C | -25 … +70 | | | | |
| • During storage | °C | -40 ... +80 | | | | |

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| Type | | 3SU1.00-.AA<br>3SU1.00-.BA<br>3SU1.00-.CA<br>3SU1.50-.AA<br>3SU1.50-.BA<br>3SU1.50-.CA | 3SU1.50-.EA | 3SU1.01-.AA<br>3SU1.01-.BA<br>3SU1.51-.AA<br>3SU1.51-.BA<br>3SU1.51-.CA | 3SU1.00-.AD<br>3SU1.00-.BD<br>3SU1.00-.CD<br>3SU1.50-.AD<br>3SU1.50-.BD<br>3SU1.50-.CD | 3SU1.50-.ED | 3SU1.01-.AD<br>3SU1.01-.BD |
|---|---|---|---|---|---|---|---|
| Product designation | | **Mushroom pushbuttons** | | | | | |
| **Operating principle of the actuating element** | | Latching | | | Momentary contact | | |
| **Optional expansion of product by light source** | | No | | Yes | No | | Yes |
| **Mechanical endurance (operating cycles) typical** | | 500 000 | 300 000 | 500 000 | 10 000 000 | 300 000 | 3 000 000 |
| **Frequency of operation, maximum** | 1/h | 1 800 | | | 3 600 | 1 800 | 3 600 |
| **Shock resistance** according to IEC 60068-2-27 | | Half-sine wave 15 *g*/11 ms | | | | | |
| **Vibration resistance** according to IEC 60068-2-6 | | 10 ... 500 Hz: 5 *g* | | | | | |
| **Degree of protection IP** | | IP66, IP67, IP69 (IP69K) | IP65, IP67, IP69 (IP69K) | IP66, IP67, IP69 (IP69K) | | IP65, IP67, IP69 (IP69K) | IP66, IP67, IP69 (IP69K) |
| **Environmental category during operation** according to IEC 60721 | | 3M6, 3S2, 3B2, 3C3, 3K6 (with a relative air humidity of 10 ... 95%) | | | | | |
| **Ambient temperature** | | | | | | | |
| • During operation | °C | -25 … +70 | | | | | |
| • During storage | °C | -40 ... +80 | | | | | |

| Type | | 3SU1...-.J<br>3SU1...-.H<br>3SU1...-.G |
|---|---|---|
| Product designation | | **EMERGENCY STOP mushroom pushbuttons** |
| **Mechanical endurance (operating cycles)** | | 300 000 |
| **Frequency of operation, maximum** | 1/h | 600 |
| **Shock resistance** according to IEC 60068-2-27 | | Half-sine wave 15 *g*/11 ms |
| **Vibration resistance** according to IEC 60068-2-6 | | 10 ... 500 Hz: 5 *g* |
| **Degree of protection IP** | | IP66, IP67, IP69 (IP69K) |
| **Environmental category during operation** according to IEC 60721 | | 3M6, 3S2, 3B2, 3C3, 3K6 (with a relative air humidity of 10 ... 95%) |
| **Ambient temperature** | | |
| • During operation | °C | -25 … +70 |
| • During storage | °C | -40 ... +80 |

| Type | | 3SU1.5.-2A<br>3SU1.5.-2B<br>3SU1.5.-2C<br>3SU1.5.-2D<br>3SU1.5.-2E | 3SU1.0.-2A<br>3SU1.0.-2B<br>3SU1.0.-2C | 3SU1.0.-3E<br>3SU1.5.-3E | 3SU1.0.-4B<br>3SU1.0.-4C<br>3SU1.0.-4D<br>3SU1.0.-4F<br>3SU1.0.-4G<br>3SU1.0.-4H<br>3SU1.0.-4J<br>3SU1.0.-4L<br>3SU1.0.-5B<br>3SU1.0.-5H<br>3SU1.0.-5P<br>3SU1.0.-5Q<br>3SU1.0.-5R<br>3SU1.0.-5S<br>3SU1.0.-5T<br>3SU1.0.-5X | 3SU1...-4B<br>3SU1...-4C<br>3SU1...-4D<br>3SU1...-4F<br>3SU1...-4G<br>3SU1...-4H<br>3SU1...-4J<br>3SU1...-4L<br>3SU1...-5B<br>3SU1...-5H<br>3SU1...-5K<br>3SU1...-5L<br>3SU1...-5P<br>3SU1...-5Q<br>3SU1...-5R<br>3SU1...-5S<br>3SU1...-5T<br>3SU1...-5X | 3SU1.0.-7A<br>3SU1.0.-7B<br>3SU1.5.-7A<br>3SU1.5.-7B |
|---|---|---|---|---|---|---|---|
| Product designation | | **Selector switches** | | **Toggle switches** | **Key-operated switches** | | **Coordinate switches** |
| **Mechanical endurance (operating cycles)** | | 300 000 | 1 000 000 | | | 300 000 | 250 000 |
| **Frequency of operation, maximum** | 1/h | 1 800 | | | | | 2 400 |
| **Shock resistance** according to IEC 60068-2-27 | | Half-sine wave 15 *g*/11 ms | | | | | |
| **Vibration resistance** according to IEC 60068-2-6 | | 10 ... 500 Hz: 5 *g* | | | | | |
| **Degree of protection IP** | | IP66, IP67, IP69 (IP69K) | | IP66, IP67, IP69 (IP69K) | IP66, IP67, IP69 (IP69K) | | IP65, IP67 |
| **Ambient temperature** | | | | | | | |
| • During operation | °C | -25 … +70 | | | | | |
| • During storage | °C | -40 ... +80 | | | | | |

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## General data

| Type | | 3SU1400-.AA10-1.A0 | 3SU1400-1AA10-1GA0, 3SU1400-1AA10-1RA0 | 3SU1400-1AA10-1HA0 | 3SU1400-.AA10-3.A0 | 3SU1400-1AA10-3HA0 | 3SU1400-3AA10-5.A0 |
|---|---|---|---|---|---|---|---|
| Product designation | | **Contact modules** | | | | | |
| **Insulation voltage**, **rated value** | V | 500 | | | | | |
| **Pollution degree** | | 3 | | | | | |
| **Impulse withstand voltage, rated value** | kV | 6 | | | | | |
| **Operational voltage type** | | AC/DC | | | | | |
| **Operational voltage, rated value** | | | | | | | |
| • At AC at 50 Hz | V | 5 ... 500 | | | | | |
| • At DC | V | 5 ... 500 | | | | | |
| **Thermal current** | A | 10 | | | | | |
| **Operational current, rated value** | | | | | | | |
| • At AC-12 | | | | | | | |
| - At 24 V | A | 10 | | | | | |
| - At 230 V | A | 8 | | | | | |
| • At AC-15 | | | | | | | |
| - At 24 V | A | 6 | | | | | |
| - At 230 V | A | 6 | 4 | | 6 | | |
| - At 400 V | A | 3 | | | | | |
| - At 500 V | A | 1.4 | | | | | |
| • At DC-12 | | | | | | | |
| - At 24 V | A | 10 | | | | | |
| - At 48 V | A | 5 | | | | | |
| - At 110 V | A | 2.5 | | | | | |
| - At 230 V | A | 1 | | 0.3 | 1 | 0.3 | 1 |
| - At 400 V | A | 0.3 | | | | | |
| - At 500 V | A | 0.3 | | 0.2 | 0.3 | | |
| • At DC-13 | | | | | | | |
| - At 24 V | A | 3 | | | | | |
| - At 48 V | A | 1.5 | | | | | |
| - At 110 V | A | 0.7 | | 0.6 | 0.7 | 0.6 | 0.7 |
| - At 230 V | A | 0.3 | | | | | |
| - At 400 V | A | 0.1 | | | | | |
| - At 500 V | A | 0.1 | | | | | |
| **Contact reliability** | | One contact failure per 100 million switching operations (17 V, 5 mA), one contact failure per 10 million switching operations (5 V, 1 mA) | | | | | |
| **Mechanical endurance (operating cycles) typical** | | 10 000 000 | | | | | |
| **Frequency of operation, maximum** | 1/s | 3 600 | | | | | |
| **Fuse link version required for short-circuit protection of the auxiliary switch with type of coordination 1** | | gG/Dz 10 A, quick-response/Dz 10 A | | | | | |
| **Uninterrupted current of miniature circuit breaker C characteristic** | A | 10 | | | | | |
| **Vibration resistance** according to IEC 60068-2-6 | | 10 ... 500 Hz: 5 *g* | | | | | |
| **Shock resistance** according to IEC 60068-2-27 | | Half-sine wave 15 *g*/11 ms | | | | | |
| **Climate class during operation** according to IEC 60721 | | 3M6, 3S2, 3B2, 3C3, 3K6 (with a relative air humidity of 10 ... 95%, no condensation permitted in operation) | | | | | |
| **Ambient temperature** | | | | | | | |
| • During operation | °C | -25 … +70 | | | | | |
| • During storage | °C | -40 ... +80 | | | | | |
| **Degree of protection IP** | | See product data sheet | | | | | |
| **Type of electrical connection** | | **Screw terminals** | | | **Spring-loaded terminals** | | **Socket terminals (THT)** |
| **Type of connectable conductor cross-sections** | | | | | | | |
| • Solid with end sleeve | mm² | 2 x (0.5 ... 0.75) | | | -- | | |
| • Solid without end sleeve | mm² | 2 x (1.0 ... 1.5) | | | 2 x (0.25 ... 1.5) | | -- |
| • Finely stranded with end sleeve | mm² | 2 x (0.5 ... 1.5) | | | 2 x (0.25 ... 0.75) | | -- |
| • Finely stranded without end sleeve | mm² | 2 x (1.0 ... 1.5) | | | 2 x (0.25 ... 1.5) | | -- |
| • For AWG cables | | 2 x (18 ... 14) | | | 2 x (24 ... 16) | | -- |
| **Tightening torque** for screw terminals | Nm | 0.8 ... 0.9 | | | -- | | |

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| Type | | 3SU1401-.....-1 | 3SU1401-.....-3 | 3SU1401-.....-5 |
|---|---|---|---|---|
| Product designation | | LED module | | |
| **Light source integrated in product** | | Yes | | |
| **Type of light source** | | LED | | |
| **Insulation voltage, rated value** | V | 320 | | |
| **Pollution degree** | | 3 | | |
| **Impulse withstand voltage, rated value** | kV | 4 | | |
| **Relative positive tolerance of the operational voltage** | % | 20 | | |
| **Relative negative tolerance of the operational voltage** | % | 20 | | |
| **Operating time typical** | h | 100 000 | | |
| **Vibration resistance** according to IEC 60068-2-6 | | 10 ... 500 Hz: 5 *g* | | |
| **Shock resistance** according to IEC 60068-2-27 | | Half-sine wave 15 *g*/11 ms | | |
| **Environmental category during operation** according to IEC 60721 | | 3M6, 3S2, 3B2, 3K6 (with a relative air humidity of 10 ... 95%, no condensation permitted in operation) | | |
| **Ambient temperature** | | | | |
| • During operation | °C | -25 … +70 | | |
| • During storage | °C | -40 ... +80 | | |
| **Degree of protection IP of the terminal** | | See product data sheet | | |
| **Type of electrical connection** | | **Screw terminals** | **Spring-loaded terminals** | **Socket terminals (THT)** |

| Type | | 3SU1400-1GC10-1AA0 | 3SU1400-1GD10-1AA0 |
|---|---|---|---|
| Product designation | | Solid-state modules for ID key-operated switches | |
| **Communication/protocol** | | | |
| **Protocol is supported by IO-Link protocol** | | No | Yes |
| **Product function** | | Group ID 24 V DC | IO-Link 24 V DC |
| **IO-Link transfer rate** | | -- | COM2 (38.4 kBaud) |
| **Point-to-point cycle time between the master and the IO-Link device, minimum** | ms | -- | 10 |
| **Type of power supply via IO-Link master** | | -- | Yes |
| **Data volume** | | | |
| • Of the address area of the inputs with cyclic transfer total | bytes | -- | 2 |
| • Of the address area of the outputs with cyclic transfer total | bytes | -- | 0 |
| **Number of NO contacts** | | 5 | |
| **General data** | | | |
| **Impulse withstand voltage, rated value** | kV | 0.8 | |
| **Insulation voltage, rated value** | V | 30 | |
| **Pollution degree** | | 3 | |
| **Voltage type** | | | |
| • Of operational voltage | | DC | |
| • Of input voltage | | DC | |
| **Operational voltage** | | | |
| • At DC, rated value | V | 24 | |
| • Rated value | V | 18 … 30 | |
| **Current consumed, maximum** | mA | 49 | |
| **Ambient temperature** | | | |
| • During operation | °C | -25 … +70 | |
| • During storage | °C | -40 ... +80 | |
| **Degree of protection IP** | | See product data sheet | |
| **Touch protection against electric shock** | | Finger-safe | |
| **Connections** | | | |
| **Type of electrical connection** | | **Screw terminals** | |
| **Connectable conductor cross-section for auxiliary contacts** | | | |
| • Solid | | | |
| - With end sleeve | mm² | 1 x (0.2 ... 2.5), 2 x (0.2 ... 0.75) | |
| - Without end sleeve | mm² | 1 x (0.2 ... 2.5), 2 x (0.2 ... 0.75) | |
| • Finely stranded | | | |
| - With end sleeve | mm² | 1 x (0.2 ... 2.5), 2 x (0.25 .. 0.75) | |
| - Without end sleeve | mm² | 1 x (0.2 ... 2.5), 2 x (0.2 ... 0.75) | |
| **AWG number as coded connectable conductor cross-section** | | 26 … 14 | |
| **Tightening torque for screw terminals** | Nm | 0.35 … 0.4 | |

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## General data

| Type | | 3SU1400-1LK10-1AA1 | 3SU1400-1LK10-3AA1 | 3SU1400-1LL10-1BA1 | 3SU1400-1LL10-3BA1 |
|---|---|---|---|---|---|
| Product designation | | Interface module | | Fail-safe interface module | |
| **Operational voltage type** | | DC | | | |
| **Supply voltage at DC rated value** | V | 24 | | | |
| **Current consumed, maximum** | mA | 150 | | | |
| **Product function at interface 1 PROFINET IO device** | | Yes | | | |
| **Type of interface Fast Ethernet interface** | | Yes | | | |
| **Interface 1 type RJ45 (Ethernet)** | | Yes | | | |
| **Number of ports at interface 1** | | 1 | | | |
| **Number of modules per rack, maximum** | | 20 | | | |
| **Number of digital outputs** | | 0 | | 1 | |
| **Number of digital inputs** | | 0 | | 4 | |
| **Software version required for STEP 7 in the TIA Portal** | | Integrated in the TIA Portal with version 14 SP1 or higher (HSP for V13 and V14) | | | |
| **Safety Integrity Level (SIL) according to IEC 62061** | | -- | | SIL 3 | |
| **Performance Level (PL) according to ISO 13849-1** | | -- | | e | |
| **Ambient temperature** | | | | | |
| • During operation | °C | 60 … -25 | | | |
| • During storage | °C | 80 … -40 | | | |
| **Degree of protection IP** | | See product data sheet | | | |
| **Connectable conductor cross-section** | | | | | |
| • Solid | | | | | |
| - With end sleeve | $mm^2$ | 0.2 … 2.5 | | | |
| • Finely stranded | | | | | |
| - With end sleeve | $mm^2$ | 0.25 … 2.5 | | | |
| - Without end sleeve | $mm^2$ | 0.2 … 2.5 | | | |

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Supply voltage for light source at AC V | Supply voltage for light source at DC V | Color | Number of contact modules | Number of NO contacts | Number of NC contacts | Screw terminals Article No. | Screw terminals Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Pushbuttons** | | | | | | | | | | |
| | | ***Pushbuttons with flat button, momentary contact*** | | | | | | | | |
| -- | -- | Black | 1 | 1 | 0 | **3SU1100-0AB10-1BA0** | | 1 | 1 unit | 41J |
| | | | | 0 | 1 | **3SU1100-0AB10-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB10-1FA0** | | 1 | 1 unit | 41J |
| | | Red | 1 | 1 | 0 | **3SU1100-0AB20-1BA0** | | 1 | 1 unit | 41J |
| | | | | 0 | 1 | **3SU1100-0AB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB20-1FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1100-0AB30-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB30-1FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1100-0AB40-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB40-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1100-0AB50-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB50-1FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1100-0AB60-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB60-1FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1100-0AB70-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB70-1FA0** | | 1 | 1 unit | 41J |
| | | Gray | 1 | 1 | 1 | **3SU1100-0AB80-1FA0** | | 1 | 1 unit | 41J |
| | | ***Pushbuttons with raised button, momentary contact*** | | | | | | | | |
| -- | -- | Black | 1 | 0 | 1 | **3SU1100-0BB10-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0BB10-1FA0** | | 1 | 1 unit | 41J |
| | | Red | 1 | 0 | 1 | **3SU1100-0BB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0BB20-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1100-0BB50-1BA0** | | 1 | 1 unit | 41J |
| | | ***Illuminated pushbuttons with flat button, momentary contact with integrated LED*** | | | | | | | | |
| 24 | 24 | Red | 1 | 1 | 0 | **3SU1102-0AB20-1BA0** | | 1 | 1 unit | 41J |
| | | | | 0 | 1 | **3SU1102-0AB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB20-1FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1102-0AB30-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB30-1FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1102-0AB40-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB40-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1102-0AB50-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB50-1FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1102-0AB60-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB60-1FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1102-0AB70-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB70-1FA0** | | 1 | 1 unit | 41J |
| 110 | -- | Red | 1 | 0 | 1 | **3SU1103-0AB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB20-1FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1103-0AB30-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB30-1FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1103-0AB40-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB40-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1103-0AB50-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB50-1FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1103-0AB60-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB60-1FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1103-0AB70-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB70-1FA0** | | 1 | 1 unit | 41J |

3SU1100-0AB40-1BA0

3SU1100-0BB20-1CA0

3SU1102-0AB40-1BA0

3SU1103-0AB20-1CA0



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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**Multi-unit packaging, see page 13/17.**

| Supply voltage for light source | | Color | Number of | | | Screw terminals | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| at AC | at DC | | contact modules | NO contacts | NC contacts | Article No. | Price per PU | | | |
| V | V | | | | | | | | | |
| **Pushbuttons** | | | | | | | | | | |
| ***Illuminated pushbuttons with flat button, momentary contact with integrated LED*** | | | | | | | | | | |
| 230 | -- | Red | 1 | 0 | 1 | **3SU1106-0AB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB20-1FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1106-0AB30-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB30-1FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1106-0AB40-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB40-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1106-0AB50-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB50-1FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1106-0AB60-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB60-1FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1106-0AB70-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB70-1FA0** | | 1 | 1 unit | 41J |

3SU1106-0AB40-1BA0

| | | | | | | **Spring-loaded terminals** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Pushbuttons with flat button, momentary contact*** | | | | | | | | | | |
| -- | -- | Black | 1 | 1 | 0 | **3SU1100-0AB10-3BA0** | | 1 | 1 unit | 41J |
| | | | | 0 | 1 | **3SU1100-0AB10-3CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB10-3FA0** | | 1 | 1 unit | 41J |
| | | Red | 1 | 0 | 1 | **3SU1100-0AB20-3CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB20-3FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1100-0AB30-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB30-3FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1100-0AB40-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB40-3FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1100-0AB50-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB50-3FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1100-0AB60-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1100-0AB60-3FA0** | | 1 | 1 unit | 41J |

3SU1100-0AB30-3BA0

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Illuminated pushbuttons with flat button, momentary contact with integrated LED*** | | | | | | | | | | |
| 24 | 24 | Red | 1 | 0 | 1 | **3SU1102-0AB20-3CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB20-3FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1102-0AB30-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB30-3FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1102-0AB40-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB40-3FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1102-0AB50-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB50-3FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1102-0AB60-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB60-3FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1102-0AB70-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1102-0AB70-3FA0** | | 1 | 1 unit | 41J |
| 110 | -- | Red | 1 | 0 | 1 | **3SU1103-0AB20-3CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB20-3FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 1 | **3SU1103-0AB30-3FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1103-0AB40-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB40-3FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 1 | **3SU1103-0AB50-3FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1103-0AB60-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB60-3FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1103-0AB70-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1103-0AB70-3FA0** | | 1 | 1 unit | 41J |
| 230 | -- | Red | 1 | 0 | 1 | **3SU1106-0AB20-3CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB20-3FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 1 | **3SU1106-0AB30-3FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1106-0AB40-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB40-3FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 1 | **3SU1106-0AB50-3FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1106-0AB60-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB60-3FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1106-0AB70-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1106-0AB70-3FA0** | | 1 | 1 unit | 41J |

3SU1102-0AB20-3CA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Unlatching method | Number of contact modules | NO contacts | NC contacts | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Mushroom pushbuttons** | | | | | | | | |
| ***With red mushroom, diameter 40 mm, latching*** | | | | | | | | |
| Pull to unlatch | 1 | 0 | 1 | **3SU1100-1BA20-1CA0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | **3SU1100-1BA20-1FA0** | | 1 | 1 unit | 41J |
| | | | | **Spring-loaded terminals** | | | | |
| Pull to unlatch | 1 | 0 | 1 | **3SU1100-1BA20-3CA0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | **3SU1100-1BA20-3FA0** | | 1 | 1 unit | 41J |

3SU1100-1BA20-3CA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Unlatching method | Number of contact modules | NO contacts | NC contacts | Marking | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **EMERGENCY STOP mushroom pushbuttons, with self-adhesive yellow backing plate (diameter 75 mm), according to ISO 13850 and IEC 60947-5-5** | | | | | | | | | |
| ***With red mushroom, diameter 40 mm, with positive latching*** | | | | | | | | | |
| Pull to unlatch | 1 | 0 | 1 | NOT-HALT ➔ | **3SU1100-1HA20-1CH0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | NOT-HALT ➔ | **3SU1100-1HA20-1FH0** | | 1 | 1 unit | 41J |
| | | | | EMERGENCY STOP ➔ | **3SU1100-1HA20-1FG0** | | 1 | 1 unit | 41J |
| Rotate to unlatch | 1 | 0 | 1 | -- ➔ | **3SU1100-1HB20-1CF0** | | 1 | 1 unit | 41J |
| | | | | NOT-HALT ➔ | **3SU1100-1HB20-1CH0** | | 1 | 1 unit | 41J |
| | | | | EMERGENCY STOP ➔ | **3SU1100-1HB20-1CG0** | | 1 | 1 unit | 41J |
| | | | | ARRET D'URGENCE ➔ | **3SU1100-1HB20-1CJ0** | | 1 | 1 unit | 41J |
| | | 0 | 2 | EMERGENCY STOP ➔ | **3SU1100-1HB20-1PG0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | NOT-HALT ➔ | **3SU1100-1HB20-1FH0** | | 1 | 1 unit | 41J |
| | | | | EMERGENCY STOP ➔ | **3SU1100-1HB20-1FG0** | | 1 | 1 unit | 41J |
| | | | | ARRET D'URGENCE ➔ | **3SU1100-1HB20-1FJ0** | | 1 | 1 unit | 41J |
| | | | | | **Spring-loaded terminals** | | | | |
| Rotate to unlatch | 1 | 0 | 1 | NOT-HALT ➔ | **3SU1100-1HB20-3CH0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | NOT-HALT ➔ | **3SU1100-1HB20-3FH0** | | 1 | 1 unit | 41J |
| ***With red mushroom, diameter 40 mm, with latching*** | | | | | | | | | |
| | | | | | **Screw terminals** | | | | |
| Rotate to unlatch | 2 | 0 | 2 | NOT-HALT ➔ | **3SU1100-1LB20-1PH0** | | 1 | 1 unit | 41J |

3SU1100-1HA20-1CH0

3SU1100-1HB20-1CH0

3SU1100-1LB20-1PH0

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

| Unlatching method | Number of contact modules | NO contacts | NC contacts | | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **EMERGENCY STOP mushroom pushbuttons, without yellow backing plate, according to ISO 13850 and IEC 60947-5** | | | | | | | | | |
| ***With red mushroom, diameter 30 mm, with positive latching*** | | | | | | | | | |
| Rotate to unlatch | 2 | 0 | 2 | ➔ | **3SU1100-1GB20-1PA0** | | 1 | 1 unit | 41J |
| ***With red mushroom, diameter 40 mm, with positive latching*** | | | | | | | | | |
| Rotate to unlatch | 2 | 0 | 2 | ➔ | **3SU1100-1HB20-1PA0** | | 1 | 1 unit | 41J |

3SU1100-1GB20-1PA0

3SU1100-1HB20-1PA0

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Operating principle | Color | Number of contact modules | NO contacts | NC contacts | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Selector switches** | | | | | | | | | |
| ***Short black actuators, 2 switch positions, can be illuminated*** | | | | | | | | | |
| Latching, 90° (10:30/1:30 o'clock) | White | 1 | 1 | 0 | **3SU1100-2BF60-1BA0** | | 1 | 1 unit | 41J |
| | | 2 | 1 | 1 | **3SU1100-2BF60-1MA0** | | 1 | 1 unit | 41J |
| | White 110 V | 1 | 1 | 0 | **3SU1103-2BF60-1BA0** | | 1 | 1 unit | 41J |
| ***Short black actuators, 3 switch positions, can be illuminated*** | | | | | | | | | |
| Momentary contact, 2x45° (10:30/12/ 1:30 o'clock), reset from left + right | White | 2 | 2 | 2 | **3SU1100-2BM60-1LA0** | | 1 | 1 unit | 41J |
| | | | 2 | 0 | **3SU1100-2BM60-1NA0** | | 1 | 1 unit | 41J |
| Latching, 2x45° (10:30/12/ 1:30 o'clock) | White | 2 | 2 | 2 | **3SU1100-2BL60-1LA0** | | 1 | 1 unit | 41J |
| | | | 2 | 0 | **3SU1100-2BL60-1NA0** | | 1 | 1 unit | 41J |
| **Spring-loaded terminals** | | | | | | | | | |
| ***Short black actuators, 2 switch positions, can be illuminated*** | | | | | | | | | |
| Latching, 90° (10:30/1:30 o'clock) | White | 1 | 1 | 0 | **3SU1100-2BF60-3BA0** | | 1 | 1 unit | 41J |
| | | 2 | 1 | 1 | **3SU1100-2BF60-3MA0** | | 1 | 1 unit | 41J |
| ***Short black actuators, 3 switch positions, can be illuminated*** | | | | | | | | | |
| Momentary contact, 2x45° (10:30/12/ 1:30 o'clock), reset from left + right | White | 2 | 2 | 2 | **3SU1100-2BM60-3LA0** | | 1 | 1 unit | 41J |
| | | | 2 | 0 | **3SU1100-2BM60-3NA0** | | 1 | 1 unit | 41J |
| Latching, 2x45° (10:30/12/ 1:30 o'clock) | White | 2 | 2 | 2 | **3SU1100-2BL60-3LA0** | | 1 | 1 unit | 41J |
| | | | 2 | 0 | **3SU1100-2BL60-3NA0** | | 1 | 1 unit | 41J |

3SU1100-2BF60-1BA0

3SU1100-2BL60-1NA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Operating principle | Switch position for key removal | Number of contact modules | Number of NO contacts | Number of NC contacts | Number of keys | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Key-operated switches** | | | | | | | | | | |
| ***With RONIS lock, SB30, 2 switch positions*** | | | | | | | | | | |
| Latching, 90° (10:30/1:30 o'clock) | O+I | 1 | 1 | 0 | 2 | **3SU1100-4BF11-1BA0** | | 1 | 1 unit | 41J |
| | | | 1 | 1 | 2 | **3SU1100-4BF11-1FA0** | | 1 | 1 unit | 41J |
| ***With RONIS lock, SB30, 3 switch positions*** | | | | | | | | | | |
| Latching, 2x45° (10:30/12/ 1:30 o'clock) | I+O+II | 2 | 2 | 0 | 2 | **3SU1100-4BL11-1NA0** | | 1 | 1 unit | 41J |
| | | | | | | **Spring-loaded terminals** | | | | |
| ***With RONIS lock, SB30, 2 switch positions*** | | | | | | | | | | |
| Latching, 90° (10:30/1:30 o'clock) | O+I | 1 | 1 | 0 | 2 | **3SU1100-4BF11-3BA0** | | 1 | 1 unit | 41J |
| | | | 1 | 1 | 2 | **3SU1100-4BF11-3FA0** | | 1 | 1 unit | 41J |
| | | 2 | 0 | 2 with installation supervision | 2 | **3SU1100-4BF21-3TA0** | | 1 | 1 unit | 41J |
| ***With Siemens lock, SSG10[1], 2 switch positions*** | | | | | | | | | | |
| Latching, 90° (10:30/1:30 o'clock) | O+I | 1 | 1 | 1 | 2 | **3SU1100-5BF11-3FA0** | | 1 | 1 unit | 41J |

3SU1100-4BF11-1BA0

3SU1100-4BL11-1NA0

[1] Siemens lock (compatible with CES locks).

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Number of NO contacts (1 per direction) | Operating principle | Direction of actuation | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Coordinate switches** | | | | | | | |
| ***Without mechanical interlock, 2 switch positions*** | | | | | | | |
| 2 | Momentary contact | Horizontal | **3SU1100-7AC10-1NA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1100-7AD10-1NA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal | **3SU1100-7AA10-1NA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1100-7AB10-1NA0** | | 1 | 1 unit | 41J |
| ***Without mechanical interlock, 4 switch positions*** | | | | | | | |
| 4 | Momentary contact | Horizontal/vertical | **3SU1100-7AF10-1QA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal/vertical | **3SU1100-7AE10-1QA0** | | 1 | 1 unit | 41J |
| ***With mechanical interlock, 2 switch positions*** | | | | | | | |
| 2 | Momentary contact | Horizontal | **3SU1100-7BC10-1NA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1100-7BD10-1NA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal | **3SU1100-7BA10-1NA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1100-7BB10-1NA0** | | 1 | 1 unit | 41J |
| ***With mechanical interlock, 4 switch positions*** | | | | | | | |
| 4 | Momentary contact | Horizontal/vertical | **3SU1100-7BF10-1QA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal/vertical | **3SU1100-7BE10-1QA0** | | 1 | 1 unit | 41J |

3SU1100-7AC10-1NA0

3SU1100-7AF10-1QA0

3SU1100-7BA10-1NA0

3SU1100-7BF10-1QA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Operational voltage at AC V | Operational voltage at DC V | Color of actuating element | Color of light source | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Indicator lights** | | | | | | | | |
| ***With smooth lens and integrated LED*** | | | | | | | | |
| 24 | 24 | Red | Red | **3SU1102-6AA20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1102-6AA30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1102-6AA40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1102-6AA50-1AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1102-6AA60-1AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1102-6AA70-1AA0** | | 1 | 1 unit | 41J |
| 110 | -- | Amber | Amber | **3SU1103-6AA00-1AA0** | | 1 | 1 unit | 41J |
| | | Red | Red | **3SU1103-6AA20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1103-6AA30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1103-6AA40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1103-6AA50-1AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1103-6AA60-1AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1103-6AA70-1AA0** | | 1 | 1 unit | 41J |
| 230 | -- | Amber | Amber | **3SU1106-6AA00-1AA0** | | 1 | 1 unit | 41J |
| | | Red | Red | **3SU1106-6AA20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1106-6AA30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1106-6AA40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1106-6AA50-1AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1106-6AA60-1AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1106-6AA70-1AA0** | | 1 | 1 unit | 41J |
| | | | | **Spring-loaded terminals** | | | | |
| 24 | 24 | Red | Red | **3SU1102-6AA20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1102-6AA30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1102-6AA40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1102-6AA50-3AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1102-6AA60-3AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1102-6AA70-3AA0** | | 1 | 1 unit | 41J |
| 110 | -- | Red | Red | **3SU1103-6AA20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1103-6AA30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1103-6AA40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1103-6AA50-3AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1103-6AA60-3AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1103-6AA70-3AA0** | | 1 | 1 unit | 41J |
| 230 | -- | Red | Red | **3SU1106-6AA20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1106-6AA30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1106-6AA40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1106-6AA50-3AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1106-6AA60-3AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1106-6AA70-3AA0** | | 1 | 1 unit | 41J |

3SU1102-6AA30-1AA0

3SU1106-6AA50-1AA0

3SU1102-6AA40-3AA0

3SU1106-6AA60-3AA0

13

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## Selection and ordering data

| Multi-unit packaging, see page 13/17. | Operational voltage at AC | Operational voltage at DC | Volume level | Degree of protection | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | V | V | dB/cm | | | | | | |
| **Acoustic signaling devices** | | | | | | | | | |
| 3SU1200-6KB10-1AA0 | 24 | 24 | 80/10 | IP40 | **3SU1200-6KB10-1AA0** | | 1 | 1 unit | 41J |
| | 110 | -- | 80/10 | IP40 | **3SU1200-6KC10-1AA0** | | 1 | 1 unit | 41J |
| | 230 | -- | 80/10 | IP40 | **3SU1200-6KF10-1AA0** | | 1 | 1 unit | 41J |
| | 24 | 24 | 75/10 | IP69 | **3SU1200-6LB10-1AA0** | | 1 | 1 unit | 41J |
| | 110 | -- | 75/10 | IP69 | **3SU1200-6LC10-1AA0** | | 1 | 1 unit | 41J |
| | 230 | -- | 75/10 | IP69 | **3SU1200-6LF10-1AA0** | | 1 | 1 unit | 41J |

## Selection and ordering data

| Multi-unit packaging, see page 13/17. | Operating principle | Number of NO contacts | Number of NC contacts | Color | M12 plug, 4-pole Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Sensor switches** | | | | | | | | | |
| 3SU1200-1SK10-2SA0 | Whether integrated in the two-hand operation console or installed as a door opening contact, the capacitive sensor switch is suitable for many different applications in industrial environments.<br>The switch is actuated by simple contact with the hand or other part of the body (i.e. without the application of pressure). As a result, these switches are rugged, extremely durable and have the highest possible degree of protection IP66, IP67, IP69 (IP69K). | | | | | | | | |
| | Without pressure | 1 | 0 | Black | **3SU1200-1SK10-2SA0** | | 1 | 1 unit | 41J |

Optional accessories

- "Protection for sensor switches", see page 13/131
- "Connectors for sensor switches, angled socket with screw terminal connection", see page 13/139

## Selection and ordering data

| Multi-unit packaging, see page 13/17. | Version of actuating element | Operating principle | Adjustable resistance | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | | kΩ | | | | | |
| **Potentiometers** | | | | | | | | |
| 3SU1200-2PQ10-1AA0 | **Rotary knob** | Stepless | 1 | **3SU1200-2PQ10-1AA0** | | 1 | 1 unit | 41J |
| | | | 2.2 | **3SU1200-2PW10-1AA0** | | 1 | 1 unit | 41J |
| | | | 4.7 | **3SU1200-2PR10-1AA0** | | 1 | 1 unit | 41J |
| | | | 10 | **3SU1200-2PS10-1AA0** | | 1 | 1 unit | 41J |
| | | | 47 | **3SU1200-2PT10-1AA0** | | 1 | 1 unit | 41J |
| | | | 100 | **3SU1200-2PU10-1AA0** | | 1 | 1 unit | 41J |
| | | | 470 | **3SU1200-2PV10-1AA0** | | 1 | 1 unit | 41J |

Labeling plates for potentiometers, see page 13/124.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

### Pushbuttons with extended stroke

For actuating relays, can only be combined with extension plunger, no contact module or LED module required

| Version | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Pushbuttons with flat button** | Red | **3SU1200-0EB20-0AA0** | | 1 | 1 unit | 41J |
| | Green | **3SU1200-0EB40-0AA0** | | 1 | 1 unit | 41J |
| **Pushbuttons with raised button** | Black | **3SU1200-0FB10-0AA0** | | 1 | 1 unit | 41J |
| | Red | **3SU1200-0FB20-0AA0** | | 1 | 1 unit | 41J |
| **Pushbuttons with flat transparent button for insertion of insert labels** | Red | **3SU1201-0EB20-0AA0** | | 1 | 1 unit | 41J |
| | Clear | **3SU1201-0EB70-0AA0** | | 1 | 1 unit | 41J |

3SU1200-0EB20-0AA0

3SU1200-0FB10-0AA0

3SU1201-0EB70-0AA0

### Accessories

| Version | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Extension plungers**<br>For compensation of the distance between the pushbutton and the resetting plunger of an overload relay | Plastic | Gray | **3SU1900-0KG10-0AA0** | | 1 | 1 unit | 41J |

3SU1900-0KG10-0AA0



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Version of actuating element<br>Front ring version | Operating principle<br>Unlatching method | Color, marking | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Pushbuttons** | | | | | | | |
| <br>3SU1000-0AB20-0AD0 | | | | | | | |
| **Pushbuttons with flat button**<br>Standard | Momentary contact | Black | **3SU1000-0AB10-0AA0** | | 1 | 1 unit | 41J |
| | | Black, "O" | **3SU1000-0AB10-0AD0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-0AB20-0AA0** | | 1 | 1 unit | 41J |
| | | Red, "O" | **3SU1000-0AB20-0AD0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-0AB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1000-0AB40-0AA0** | | 1 | 1 unit | 41J |
| | | Green, "I" | **3SU1000-0AB40-0AC0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1000-0AB50-0AA0** | | 1 | 1 unit | 41J |
| | | Blue, "R" | **3SU1000-0AB50-0AR0** | | 1 | 1 unit | 41J |
| | | White | **3SU1000-0AB60-0AA0** | | 1 | 1 unit | 41J |
| | | White, "I" | **3SU1000-0AB60-0AC0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1000-0AB70-0AA0** | | 1 | 1 unit | 41J |
| | | Gray | **3SU1000-0AB80-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1000-0AA30-0AA0 | Latching<br>Push to unlatch | Black | **3SU1000-0AA10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-0AA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-0AA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1000-0AA40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1000-0AA50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1000-0AA60-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1000-0BB30-0AA0 | | | | | | | |
| **Pushbuttons with raised button**<br>Standard | Momentary contact | Black | **3SU1000-0BB10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-0BB20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-0BB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1000-0BB40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1000-0BB50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1000-0BB60-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1000-0CB40-0AA0 | | | | | | | |
| **Pushbuttons with flat button**<br>Raised | Momentary contact | Black | **3SU1000-0CB10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-0CB20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-0CB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1000-0CB40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1000-0CB50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1000-0CB60-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1000-0DB50-0AA0 | | | | | | | |
| **Pushbuttons with flat button**<br>Raised, castellated | Momentary contact | Black | **3SU1000-0DB10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-0DB20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-0DB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1000-0DB40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1000-0DB50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1000-0DB60-0AA0** | | 1 | 1 unit | 41J |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

| Version of actuating element<br>Front ring version | Operating principle<br>Unlatching method | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Pushbuttons** | | | | | | | |
| <br>3SU1001-0AB40-0AA0 | | | | | | | |
| **Illuminated pushbuttons with flat button**<br>Standard | Momentary contact | Amber | **3SU1001-0AB00-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1001-0AB20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1001-0AB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1001-0AB40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1001-0AB50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1001-0AB60-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1001-0AB70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1001-0AA20-0AA0 | Latching<br>Push to unlatch | Red | **3SU1001-0AA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1001-0AA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1001-0AA40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1001-0AA50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1001-0AA60-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1001-0AA70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1001-0BB70-0AA0 | | | | | | | |
| **Illuminated pushbuttons with raised button**<br>Standard | Momentary contact | Red | **3SU1001-0BB20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1001-0BB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1001-0BB40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1001-0BB50-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1001-0BB70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1001-0DB50-0AA0 | | | | | | | |
| **Illuminated pushbuttons with flat button**<br>Raised, castellated | Momentary contact | Blue | **3SU1001-0DB50-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1000-0HC10-0AA0 | | | | | | | |
| **Stop pushbuttons**<br>Standard | Momentary contact, latching by pressing in and turning to the right<br>Rotate to unlatch to the left | Black | **3SU1000-0HC10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-0HC20-0AA0** | | 1 | 1 unit | 41J |

13

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**Illustrations are approximate**

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## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Version of actuating element | Operating principle | Color | Marking Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Twin pushbuttons** | | | | | | | | |
| 3SU1000-3AB66-0AL0 | | | | | | | | |
| **Twin pushbuttons** flat, flat | Momentary contact | Green/red | --<br>"I"/"O" | **3SU1000-3AB42-0AA0**<br>**3SU1000-3AB42-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | White/black | --<br>"I"/"O" | **3SU1000-3AB61-0AA0**<br>**3SU1000-3AB61-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | White/white | --<br>"–"/"+"<br>Arrows, hor.<br>Arrows, vert. | **3SU1000-3AB66-0AA0**<br>**3SU1000-3AB66-0AL0**<br>**3SU1000-3AB66-0AM0**<br>**3SU1000-3AB66-0AN0** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J<br>41J |
| | | Black/black | --<br>⊙<br>○<br>5264/5265 (IEC 60417) | **3SU1000-3AB11-0AA0**<br>**3SU1000-3AB11-0AQ0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| 3SU1000-3BB42-0AK0 | | | | | | | | |
| **Twin pushbuttons** flat, raised | Momentary contact | Green/red | --<br>"I"/"O" | **3SU1000-3BB42-0AA0**<br>**3SU1000-3BB42-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | White/black | --<br>"I"/"O" | **3SU1000-3BB61-0AA0**<br>**3SU1000-3BB61-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| 3SU1001-3AB42-0AN0 | | | | | | | | |
| **Twin pushbuttons** flat, flat, illuminated | Momentary contact | Green/red | --<br>"I"/"O"<br>Arrows, vert. | **3SU1001-3AB42-0AA0**<br>**3SU1001-3AB42-0AK0**<br>**3SU1001-3AB42-0AN0** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| | | White/black | --<br>"I"/"O" | **3SU1001-3AB61-0AA0**<br>**3SU1001-3AB61-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | White/white | --<br>"–"/"+"<br>Arrows, vert.<br>Symbols "Circular saw blade"/ "Tilt tipper" | **3SU1001-3AB66-0AA0**<br>**3SU1001-3AB66-0AL0**<br>**3SU1001-3AB66-0AN0**<br>**3SU1001-3AB66-0AP0** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J<br>41J |
| 3SU1001-3BB61-0AK0 | | | | | | | | |
| **Twin pushbuttons** flat, raised, illuminated | Momentary contact | Green/red | --<br>"I"/"O" | **3SU1001-3BB42-0AA0**<br>**3SU1001-3BB42-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | White/black | --<br>"I"/"O" | **3SU1001-3BB61-0AA0**<br>**3SU1001-3BB61-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |

## Selection and ordering data

| Version of actuating element | Operating principle | Color | Marking | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Quadruple pushbuttons** | | | | | | | | |
| 3SU1000-3FB11-0AU0 | | | | | | | | |
| **Quadruple pushbuttons** flat | Momentary contact | Black | --<br>Arrows, vert.; arrows, hor. | **3SU1000-3FB11-0AA0**<br>**3SU1000-3FB11-0AU0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Version of actuating element | Operating principle / Unlatching method | Color, marking | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Mushroom pushbuttons** | | | | | | | |
| 3SU1000-1AD20-0AA0 | | | | | | | |
| **Mushroom pushbuttons** 30 mm diameter, 2 positions | Momentary contact | Black | **3SU1000-1AD10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-1AD20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-1AD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1000-1AD40-0AA0** | | 1 | 1 unit | 41J |
| | Latching / Pull to unlatch | Black | **3SU1000-1AA10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-1AA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-1AA30-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-1BD40-0AA0 | | | | | | | |
| **Mushroom pushbuttons** 40 mm diameter, 2 positions | Momentary contact | Black | **3SU1000-1BD10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-1BD20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-1BD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1000-1BD40-0AA0** | | 1 | 1 unit | 41J |
| | Latching / Pull to unlatch | Black | **3SU1000-1BA10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-1BA20-0AA0** | | 1 | 1 unit | 41J |
| | | Red "O" | **3SU1000-1BA20-0AD0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-1BA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1000-1BA40-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-1CD10-0AA0 | | | | | | | |
| **Mushroom pushbuttons** 60 mm diameter, 2 positions | Momentary contact | Black | **3SU1000-1CD10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-1CD20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1000-1CD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1000-1CD40-0AA0** | | 1 | 1 unit | 41J |
| | Latching / Pull to unlatch | Black | **3SU1000-1CA10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1000-1CA20-0AA0** | | 1 | 1 unit | 41J |
| 3SU1001-1AD30-0AA0 | | | | | | | |
| **Mushroom pushbuttons** 30 mm diameter, 2 positions, illuminated | Momentary contact | Red | **3SU1001-1AD20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1001-1AD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1001-1AD40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1001-1AD50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1001-1AD60-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1001-1AD70-0AA0** | | 1 | 1 unit | 41J |
| | Latching / Pull to unlatch | Red | **3SU1001-1AA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1001-1AA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1001-1AA40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1001-1AA50-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1001-1AA70-0AA0** | | 1 | 1 unit | 41J |
| 3SU1001-1BA50-0AA0 | | | | | | | |
| **Mushroom pushbuttons** 40 mm diameter, 2 positions, illuminated | Momentary contact | Yellow | **3SU1001-1BD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1001-1BD40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1001-1BD60-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1001-1BD70-0AA0** | | 1 | 1 unit | 41J |
| | Latching / Pull to unlatch | Red | **3SU1001-1BA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1001-1BA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1001-1BA40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1001-1BA50-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1001-1BA70-0AA0** | | 1 | 1 unit | 41J |
| **Mushroom pushbuttons** 40 mm diameter, 2 positions | With positive latching / Rotate to unlatch | Black | **3SU1000-1HB10-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1000-1HB50-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-1HG10-0AA0 | | | | | | | |
| **Mushroom pushbuttons** 40 mm diameter, 2 positions RONIS 455 | With positive latching / Key-operated release | Black | **3SU1000-1HG10-0AA0** | | 1 | 1 unit | 41J |
| **Mushroom pushbuttons,** 60 mm diameter, 2 positions | With positive latching / Rotate to unlatch | Black | **3SU1000-1JB10-0AA0** | | 1 | 1 unit | 41J |

13

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Selection and ordering data

| Multi-unit packaging, see page 13/17. | Version of actuating element | Outer diameter of mushroom | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | mm | | | | | | |
| **EMERGENCY STOP mushroom pushbuttons, according to ISO 13850 and IEC 60947-5-5** | | | | | | | | |
| | ***With pull to unlatch*** | | | | | | | |
| 3SU1000-1HA20-0AA0 | With positive latching, 2 positions | 40 | Red | **3SU1000-1HA20-0AA0** | | 1 | 1 unit | 41J |
| | ***With rotate to unlatch*** | | | | | | | |
| 3SU1000-1GB20-0AA0 | With positive latching, 2 positions | 33.8 | Red | **3SU1000-1GB20-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-1HB20-0AA0 | | 40 | Red | **3SU1000-1HB20-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-1JB20-0AA0 | | 60 | Red | **3SU1000-1JB20-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-1LB20-0AA0 | With latching, 2 positions | 40 | Red | **3SU1000-1LB20-0AA0** | | 1 | 1 unit | 41J |
| | ***With rotate to unlatch, can be illuminated*** | | | | | | | |
| 3SU1001-1HB20-0AA0 | With positive latching, 2 positions | 33.8 | Red | **3SU1001-1GB20-0AA0** | | 1 | 1 unit | 41J |
| | | 40 | Red | **3SU1001-1HB20-0AA0** | | 1 | 1 unit | 41J |
| | | 60 | Red | **3SU1001-1JB20-0AA0** | | 1 | 1 unit | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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Multi-unit packaging, see page 13/17.

| Version of actuating element | Outer diameter of mushroom | Make of lock | Color | Number of keys | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | mm | | | | | | | | |
| **EMERGENCY STOP mushroom pushbuttons, according to ISO 13850 and IEC 60947-5-5** | | | | | | | | | |
| ***With key-operated release*** | | | | | | | | | |
| With positive latching, 2 positions | 40 | RONIS, SB30 | Red | 2 | **3SU1000-1HF20-0AA0** | | 1 | 1 unit | 41J |
| | | RONIS, 455 | Red | 2 | **3SU1000-1HG20-0AA0** | | 1 | 1 unit | 41J |
| | | BKS, S1 | Red | 2 | **3SU1000-1HK20-0AA0** | | 1 | 1 unit | 41J |
| | | BKS, E7 | Red | 0 | **3SU1000-1HM20-0AA0** | | 1 | 1 unit | 41J |
| | | BKS, E9 | Red | 0 | **3SU1000-1HN20-0AA0** | | 1 | 1 unit | 41J |
| | | O.M.R. 73037 | Red | 2 | **3SU1000-1HQ20-0AA0** | | 1 | 1 unit | 41J |
| | | Siemens, SSG10[1)] | Red | 2 | **3SU1000-1HR20-0AA0** | | 1 | 1 unit | 41J |
| | | Siemens, SSP9[1)] | Red | 2 | **3SU1000-1HS20-0AA0** | | 1 | 1 unit | 41J |
| | | Siemens, SMS1[1)] | Red | 2 | **3SU1000-1HT20-0AA0** | | 1 | 1 unit | 41J |

3SU1000-1HF20-0AA0

3SU1000-1HK20-0AA0

3SU1000-1HQ20-0AA0

3SU1000-1HR20-0AA0

[1)] Siemens lock (compatible with CES locks).

## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Number of switching positions | Number of command points | Color of actuating element | Operating principle of the actuating element | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Toggle switches** | | | | | | | | |
| 2 | 1 | Black | Latching | **3SU1000-3EA10-0AA0** | | 1 | 1 unit | 41J |
| | | | Momentary contact, reset from above | **3SU1000-3EC10-0AA0** | | 1 | 1 unit | 41J |

3SU1000-3EA10-0AA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Version of actuating element | Operating principle | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Selector switches** | | | | | | | |
| ***2 switch positions, can be illuminated*** | | | | | | | |
| 3SU1002-2BC40-0AA0 | | | | | | | |
| Selector, short black actuator | Momentary contact, 45° (10:30/12 o'clock), reset from center to left | Black | **3SU1002-2BC10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1002-2BC20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1002-2BC30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1002-2BC40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1002-2BC50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1002-2BC60-0AA0** | | 1 | 1 unit | 41J |
| 3SU1002-2BF30-0AA0 | Latching, 90° (10:30/1:30 o'clock) | Black | **3SU1002-2BF10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1002-2BF20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1002-2BF30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1002-2BF40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1002-2BF50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1002-2BF60-0AA0** | | 1 | 1 unit | 41J |
| 3SU1002-2CF20-0AA0 | | | | | | | |
| Selector, long black actuator | Latching, 90° (10:30/1:30 o'clock) | Black | **3SU1002-2CF10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1002-2CF20-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1002-2CF60-0AA0** | | 1 | 1 unit | 41J |
| 3SU1002-2AF20-0AA0 | | | | | | | |
| Rotary knob | Latching, 90° (10:30/1:30 o'clock) | Red | **3SU1002-2AF20-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1002-2AF60-0AA0** | | 1 | 1 unit | 41J |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

## Selector switches

| Version of actuating element | Operating principle | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| ***3 switch positions, can be illuminated*** | | | | | | | |
| Selector, short black actuator | Momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right | Black | **3SU1002-2BM10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1002-2BM20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1002-2BM30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1002-2BM40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1002-2BM50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1002-2BM60-0AA0** | | 1 | 1 unit | 41J |
| | Latching, 2x45° (10:30/12/1:30 o'clock) | Black | **3SU1002-2BL10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1002-2BL20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1002-2BL30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1002-2BL40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1002-2BL50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1002-2BL60-0AA0** | | 1 | 1 unit | 41J |
| | Momentary contact/latching, 2x45° (10:30/12/1:30 o'clock), reset from the left, latching to the right | Black | **3SU1002-2BP10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1002-2BP20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1002-2BP30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1002-2BP40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1002-2BP50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1002-2BP60-0AA0** | | 1 | 1 unit | 41J |
| | Latching/momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from the right, latching to the left | Black | **3SU1002-2BN10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1002-2BN20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1002-2BN30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1002-2BN40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1002-2BN50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1002-2BN60-0AA0** | | 1 | 1 unit | 41J |
| ***4 switch positions*** | | | | | | | |
| Rotary knob | Latching, 4x90° (3/6/9/12 o'clock) | White | **3SU1000-2AS60-0AA0** | | 1 | 1 unit | 41J |

3SU1002-2BM20-0AA0

3SU1002-2BL60-0AA0

3SU1002-2BP50-0AA0

3SU1002-2BN30-0AA0

3SU1000-2AS60-0AA0

13

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Operating principle | Make of lock | Switch position for key removal | Number of keys | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Key-operated switches** | | | | | | | | |
| ***2 switch positions*** | | | | | | | | |
| 3SU1000-4JC01-0AA0 | | | | | | | | |
| Momentary contact, 45° (10:30/12 o'clock), reset from center to left | RONIS, SB30 | O | 2 | **3SU1000-4BC01-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 455 | O | 2 | **3SU1000-4CC01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73037, red | O | 2 | **3SU1000-4FC01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73038, light blue | O | 2 | **3SU1000-4GC01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73034, black | O | 2 | **3SU1000-4HC01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73033, yellow | O | 2 | **3SU1000-4JC01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1] | O | 2 | **3SU1000-5BC01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, LSG1[1] | O | 2 | **3SU1000-5HC01-0AA0** | | 1 | 1 unit | 41J |
| | BKS, S1 | O | 2 | **3SU1000-5PC01-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-4BF11-0AA0 | | | | | | | | |
| Latching, 90° (10:30/ 1:30 o'clock) | RONIS, SB30 | O | 2 | **3SU1000-4BF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-4BF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1000-4BF21-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 455 | O | 2 | **3SU1000-4CF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-4CF11-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 421 | O+I | 2 | **3SU1000-4DF11-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-4GF11-0AA0 | | | | | | | | |
| | O.M.R. 73037, red | O | 2 | **3SU1000-4FF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-4FF11-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73038, light blue | O | 2 | **3SU1000-4GF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-4GF11-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73034, black | O | 2 | **3SU1000-4HF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-4HF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1000-4HF21-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73033, yellow | O | 2 | **3SU1000-4JF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-4JF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1000-4JF21-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-5BF11-0AA0 | | | | | | | | |
| | Siemens, SSG10[1] | O | 2 | **3SU1000-5BF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-5BF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1000-5BF21-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1] with key monitoring | O | 2 | **3SU1000-5JF01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, LSG1[1] | O | 2 | **3SU1000-5HF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-5HF11-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-5PF11-0AA0 | | | | | | | | |
| | BKS, S1 | O | 2 | **3SU1000-5PF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-5PF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1000-5PF21-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E1 | O | 0 | **3SU1000-5QF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 0 | **3SU1000-5QF11-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E2 | O | 0 | **3SU1000-5RF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 0 | **3SU1000-5RF11-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E7 | O | 0 | **3SU1000-5SF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 0 | **3SU1000-5SF11-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E9 | O | 0 | **3SU1000-5TF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 0 | **3SU1000-5TF11-0AA0** | | 1 | 1 unit | 41J |

[1] Siemens lock (compatible with CES locks).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

## Key-operated switches

3SU1000-4BM01-0AA0

3SU1000-4FL01-0AA0

3SU1000-5BL01-0AA0

***3 switch positions***

| Operating principle | Make of lock | Switch position for key removal | Number of keys | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| Momentary contact, 2x45° (10:30/12/ 1:30 o'clock), reset from left + right | RONIS, SB30 | O | 2 | **3SU1000-4BM01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73037, red | O | 2 | **3SU1000-4FM01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73034, black | O | 2 | **3SU1000-4HM01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1] | O | 2 | **3SU1000-5BM01-0AA0** | | 1 | 1 unit | 41J |
| | BKS, S1 | O | 2 | **3SU1000-5PM01-0AA0** | | 1 | 1 unit | 41J |
| Latching, 2x45° (10:30/12/ 1:30 o'clock) | RONIS, SB30 | O | 2 | **3SU1000-4BL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1000-4BL11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1000-4BL21-0AA0** | | 1 | 1 unit | 41J |
| | | II | 2 | **3SU1000-4BL31-0AA0** | | 1 | 1 unit | 41J |
| | | I+II | 2 | **3SU1000-4BL41-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-4BL51-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 455 | O | 2 | **3SU1000-4CL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1000-4CL11-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73037, red | O | 2 | **3SU1000-4FL01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-4FL51-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73038, light blue | O | 2 | **3SU1000-4GL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1000-4GL11-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73034, black | O | 2 | **3SU1000-4HL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1000-4HL11-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73033, yellow | I+O+II | 2 | **3SU1000-4JL11-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1] | O | 2 | **3SU1000-5BL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1000-5BL11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1000-5BL21-0AA0** | | 1 | 1 unit | 41J |
| | | II | 2 | **3SU1000-5BL31-0AA0** | | 1 | 1 unit | 41J |
| | | I+II | 2 | **3SU1000-5BL41-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1000-5BL51-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1] with key monitoring | O | 2 | **3SU1000-5JL01-0AA0** | | 1 | 1 unit | 41J |
| | BKS, S1 | O | 2 | **3SU1000-5PL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1000-5PL11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1000-5PL21-0AA0** | | 1 | 1 unit | 41J |
| | | II | 2 | **3SU1000-5PL31-0AA0** | | 1 | 1 unit | 41J |
| | | I+II | 2 | **3SU1000-5PL41-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E2 | I+O+II | 0 | **3SU1000-5RL11-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E9 | I+O+II | 0 | **3SU1000-5TL11-0AA0** | | 1 | 1 unit | 41J |

[1] Siemens lock (compatible with CES locks).

13

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| Multi-unit packaging, see page 13/17. | Operating principle | Make of lock | Switch position for key removal | Number of keys | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Key-operated switches** | | | | | | | | | |
| | ***3 switch positions*** | | | | | | | | |
| 3SU1000-4BP01-0AA0 | Momentary contact/latching, 2x45° (10:30/12/ 1:30 o'clock), reset from the left, latching to the right | RONIS, SB30 | O<br>II<br>O+II | 2<br>2<br>2 | **3SU1000-4BP01-0AA0**<br>**3SU1000-4BP31-0AA0**<br>**3SU1000-4BP61-0AA0** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| | | Siemens, SSG10[1] | O<br>II<br>O+II | 2<br>2<br>2 | **3SU1000-5BP01-0AA0**<br>**3SU1000-5BP31-0AA0**<br>**3SU1000-5BP61-0AA0** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| 3SU1000-5BP01-0AA0 | | BKS, S1 | O | 2 | **3SU1000-5PP01-0AA0** | | 1 | 1 unit | 41J |
| 3SU1000-4GN01-0AA0 | Latching/momentary contact, 2x45° (10:30/12/ 1:30 o'clock), reset from the right, latching to the left | RONIS, SB30 | O<br>I<br>O+I | 2<br>2<br>2 | **3SU1000-4BN01-0AA0**<br>**3SU1000-4BN21-0AA0**<br>**3SU1000-4BN51-0AA0** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| | | O.M.R. 73038, light blue | O | 2 | **3SU1000-4GN01-0AA0** | | 1 | 1 unit | 41J |
| | | O.M.R. 73034, black | I | 2 | **3SU1000-4HN21-0AA0** | | 1 | 1 unit | 41J |
| | | Siemens, SSG10[1] | O<br>I<br>O+I | 2<br>2<br>2 | **3SU1000-5BN01-0AA0**<br>**3SU1000-5BN21-0AA0**<br>**3SU1000-5BN51-0AA0** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| | | BKS, S1 | I<br>O+I | 2<br>2 | **3SU1000-5PN21-0AA0**<br>**3SU1000-5PN51-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |

[1] Siemens lock (compatible with CES locks).

## Selection and ordering data

| Multi-unit packaging, see page 13/17. | Actuating angle | Operating principle | Switch position for key removal | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **ID key-operated switches** | | | | | | | | | |
| | ***4 switch positions*** | | | | | | | | |
| 3SU1000-4WS10-0AA0 | 45° | Latching | Key removal possible in all 4 positions | Black | **3SU1000-4WS10-0AA0** | | 1 | 1 unit | 41J |

ID keys, see page 13/135.

Solid-state modules for ID key-operated switches, see page 13/90.

Plastic holders for ID key-operated switches, see page 13/76.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Product function Locking in zero position | Number of switching positions | Operating principle | Direction of actuation | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Coordinate switches** | | | | | | | | |
| No | 2 | Momentary contact | Horizontal | **3SU1000-7AC10-0AA0** | | 1 | 1 unit | 41J |
| | | | Vertical | **3SU1000-7AD10-0AA0** | | 1 | 1 unit | 41J |
| | | Latching | Horizontal | **3SU1000-7AA10-0AA0** | | 1 | 1 unit | 41J |
| | | | Vertical | **3SU1000-7AB10-0AA0** | | 1 | 1 unit | 41J |
| | 4 | Momentary contact | Horizontal/ vertical | **3SU1000-7AF10-0AA0** | | 1 | 1 unit | 41J |
| | | Latching | Horizontal/ vertical | **3SU1000-7AE10-0AA0** | | 1 | 1 unit | 41J |
| Yes | 2 | Momentary contact | Horizontal | **3SU1000-7BC10-0AA0** | | 1 | 1 unit | 41J |
| | | | Vertical | **3SU1000-7BD10-0AA0** | | 1 | 1 unit | 41J |
| | | Latching | Horizontal | **3SU1000-7BA10-0AA0** | | 1 | 1 unit | 41J |
| | | | Vertical | **3SU1000-7BB10-0AA0** | | 1 | 1 unit | 41J |
| | 4 | Momentary contact | Horizontal/ vertical | **3SU1000-7BF10-0AA0** | | 1 | 1 unit | 41J |
| | | Latching | Horizontal/ vertical | **3SU1000-7BE10-0AA0** | | 1 | 1 unit | 41J |

3SU1000-7AA10-0AA0

3SU1000-7BA10-0AA0

## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Product version | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Indicator lights** | | | | | | |
| **With smooth lens** | Amber | **3SU1001-6AA00-0AA0** | | 1 | 5 units | 41J |
| | Red | **3SU1001-6AA20-0AA0** | | 1 | 5 units | 41J |
| | Yellow | **3SU1001-6AA30-0AA0** | | 1 | 5 units | 41J |
| | Green | **3SU1001-6AA40-0AA0** | | 1 | 5 units | 41J |
| | Blue | **3SU1001-6AA50-0AA0** | | 1 | 5 units | 41J |
| | White | **3SU1001-6AA60-0AA0** | | 1 | 5 units | 41J |
| | Clear | **3SU1001-6AA70-0AA0** | | 1 | 5 units | 41J |
| **Indicator lights in illuminated pushbutton design** | | | | | | |
| -- | Red | **3SU1001-0AD20-0AA0** | | 1 | 1 unit | 41J |
| | Yellow | **3SU1001-0AD30-0AA0** | | 1 | 1 unit | 41J |
| | Green | **3SU1001-0AD40-0AA0** | | 1 | 1 unit | 41J |
| | Blue | **3SU1001-0AD50-0AA0** | | 1 | 1 unit | 41J |
| | Clear | **3SU1001-0AD70-0AA0** | | 1 | 1 unit | 41J |

3SU1001-6AA40-0AA0

3SU1001-0AD50-0AA0

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| | Mounting diameter | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | mm | | | | | | | |
| **Sealing plugs**[1] | | | | | | | | |
| 3SU1900-0FA10-0AA0 | 22 | Plastic | Black | **3SU1900-0FA10-0AA0** | | 1 | 5 units | 41J |

[1] The sealing plug is mounted with a holder.
Modules might already be mounted on the holder.

| | Product version | Mounting diameter | Accessory material | Accessory color | **Screw terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | mm | | | Article No. / Price per PU | | | |
| **USB connections** | | | | | | | | |
| 3SU1900-0GA10-0AA0 | USB 3.0 | 22 | Plastic | Black | **3SU1900-0GA10-0AA0** | 1 | 1 unit | 41J |
| **RJ45 connections** | | | | | | | | |
| 3SU1900-0GB10-0AA0 | RJ-45 Cat. 5e | 22 | Plastic | Black | **3SU1900-0GB10-0AA0** | 1 | 1 unit | 41J |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Supply voltage for light source at AC V | Supply voltage for light source at DC V | Color | Number of contact modules | Number of NO contacts | Number of NC contacts | Screw terminals Article No. | Screw terminals Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Pushbuttons** | | | | | | | | | | |
| | | ***Pushbuttons with flat button, momentary contact*** | | | | | | | | |
| -- | -- | Black | 1 | 1 | 0 | **3SU1150-0AB10-1BA0** | | 1 | 1 unit | 41J |
| | | | | 0 | 1 | **3SU1150-0AB10-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB10-1FA0** | | 1 | 1 unit | 41J |
| | | Red | 1 | 1 | 0 | **3SU1150-0AB20-1BA0** | | 1 | 1 unit | 41J |
| | | | | 0 | 1 | **3SU1150-0AB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB20-1FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1150-0AB30-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB30-1FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1150-0AB40-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB40-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1150-0AB50-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB50-1FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1150-0AB60-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB60-1FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1150-0AB70-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB70-1FA0** | | 1 | 1 unit | 41J |
| | | ***Pushbuttons with raised button, momentary contact*** | | | | | | | | |
| -- | -- | Black | 1 | 1 | 0 | **3SU1150-0BB10-1BA0** | | 1 | 1 unit | 41J |
| | | | | 0 | 1 | **3SU1150-0BB10-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0BB10-1FA0** | | 1 | 1 unit | 41J |
| | | Red | 1 | 0 | 1 | **3SU1150-0BB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0BB20-1FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 1 | **3SU1150-0BB40-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1150-0BB50-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0BB50-1FA0** | | 1 | 1 unit | 41J |
| | | ***Illuminated pushbuttons with flat button, momentary contact, with integrated LED*** | | | | | | | | |
| 24 | 24 | Amber | 1 | 1 | 0 | **3SU1152-0AB00-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB00-1FA0** | | 1 | 1 unit | 41J |
| | | Red | 1 | 0 | 1 | **3SU1152-0AB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB20-1FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1152-0AB30-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB30-1FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1152-0AB40-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB40-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1152-0AB50-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB50-1FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1152-0AB60-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB60-1FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1152-0AB70-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB70-1FA0** | | 1 | 1 unit | 41J |
| 110 | -- | Amber | 1 | 1 | 0 | **3SU1153-0AB00-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB00-1FA0** | | 1 | 1 unit | 41J |
| | | Red | 1 | 0 | 1 | **3SU1153-0AB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB20-1FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1153-0AB30-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB30-1FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1153-0AB40-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB40-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1153-0AB50-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB50-1FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1153-0AB60-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB60-1FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1153-0AB70-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB70-1FA0** | | 1 | 1 unit | 41J |

3SU1150-0AB30-1BA0

3SU1150-0BB20-1CA0

3SU1152-0AB50-1BA0

3SU1153-0AB60-1BA0

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Multi-unit packaging, see page 13/17.

| Supply voltage for light source at AC V | Supply voltage for light source at DC V | Color | Number of contact modules | Number of NO contacts | Number of NC contacts | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Pushbuttons** | | | | | | | | | | |
| | | | | | | | | | | |
| ***Illuminated pushbuttons with flat button, momentary contact, with integrated LED*** | | | | | | | | | | |
| 230 | -- | Amber | 1 | 1 | 0 | **3SU1156-0AB00-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB00-1FA0** | | 1 | 1 unit | 41J |
| | | Red | 1 | 0 | 1 | **3SU1156-0AB20-1CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB20-1FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1156-0AB30-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB30-1FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1156-0AB40-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB40-1FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1156-0AB50-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB50-1FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1156-0AB60-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB60-1FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1156-0AB70-1BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB70-1FA0** | | 1 | 1 unit | 41J |
| | | | | | | **Spring-loaded terminals** | | | | |
| ***Pushbuttons with flat button, momentary contact*** | | | | | | | | | | |
| -- | -- | Black | 1 | 1 | 0 | **3SU1150-0AB10-3BA0** | | 1 | 1 unit | 41J |
| | | | | 0 | 1 | **3SU1150-0AB10-3CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB10-3FA0** | | 1 | 1 unit | 41J |
| | | Red | 1 | 1 | 0 | **3SU1150-0AB20-3CA0** | | 1 | 1 unit | 41J |
| | | | | 0 | 1 | **3SU1150-0AB20-3FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1150-0AB30-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB30-3FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1150-0AB40-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB40-3FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1150-0AB50-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB50-3FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1150-0AB60-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1150-0AB60-3FA0** | | 1 | 1 unit | 41J |
| ***Pushbuttons with raised button, momentary contact*** | | | | | | | | | | |
| -- | -- | Red | 1 | 0 | 1 | **3SU1150-0BB20-3CA0** | | 1 | 1 unit | 41J |

3SU1156-0AB50-1BA0

3SU1150-0AB40-3BA0

3SU1150-0BB20-3CA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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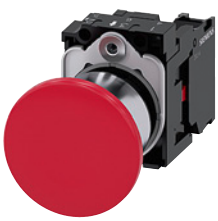
**Multi-unit packaging, see page 13/17.**

| Supply voltage for light source at AC V | Supply voltage for light source at DC V | Color | Number of contact modules | Number of NO contacts | Number of NC contacts | Screw terminals Article No. | Screw terminals Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Pushbuttons** | | | | | | | | | | |
| ***Illuminated pushbuttons with flat button, momentary contact, with integrated LED*** | | | | | | | | | | |
| 3SU1152-0AB20-3CA0 | | | | | | | | | | |
| 24 | 24 | Red | 1 | 0 | 1 | **3SU1152-0AB20-3CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB20-3FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1152-0AB30-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB30-3FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1152-0AB40-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB40-3FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1152-0AB50-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB50-3FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1152-0AB60-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB60-3FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1152-0AB70-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1152-0AB70-3FA0** | | 1 | 1 unit | 41J |
| 3SU1153-0AB60-3BA0 | | | | | | | | | | |
| 110 | -- | Red | 1 | 0 | 1 | **3SU1153-0AB20-3CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB20-3FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1153-0AB30-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB30-3FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1153-0AB40-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB40-3FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1153-0AB50-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB50-3FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1153-0AB60-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB60-3FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1153-0AB70-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1153-0AB70-3FA0** | | 1 | 1 unit | 41J |
| 3SU1156-0AB30-3BA0 | | | | | | | | | | |
| 230 | -- | Red | 1 | 0 | 1 | **3SU1156-0AB20-3CA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB20-3FA0** | | 1 | 1 unit | 41J |
| | | Yellow | 1 | 1 | 0 | **3SU1156-0AB30-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB30-3FA0** | | 1 | 1 unit | 41J |
| | | Green | 1 | 1 | 0 | **3SU1156-0AB40-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB40-3FA0** | | 1 | 1 unit | 41J |
| | | Blue | 1 | 1 | 0 | **3SU1156-0AB50-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB50-3FA0** | | 1 | 1 unit | 41J |
| | | White | 1 | 1 | 0 | **3SU1156-0AB60-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB60-3FA0** | | 1 | 1 unit | 41J |
| | | Clear | 1 | 1 | 0 | **3SU1156-0AB70-3BA0** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1156-0AB70-3FA0** | | 1 | 1 unit | 41J |

## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Unlatching method | Number of contact modules | NO contacts | NC contacts | Screw terminals Article No. | Screw terminals Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Mushroom pushbuttons** | | | | | | | | |
| ***With red mushroom, diameter 40 mm, latching*** | | | | | | | | |
|  3SU1150-1BA20-1CA0 | | | | | | | | |
| Pull to unlatch | 1 | 0 | 1 | **3SU1150-1BA20-1CA0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | **3SU1150-1BA20-1FA0** | | 1 | 1 unit | 41J |
| | | | | **Spring-loaded terminals** | | | | |
| Pull to unlatch | 1 | 0 | 1 | **3SU1150-1BA20-3CA0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | **3SU1150-1BA20-3FA0** | | 1 | 1 unit | 41J |

13

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Unlatching method | Number of contact modules | NO contacts | NC contacts | Marking | Spring-loaded terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **EMERGENCY STOP mushroom pushbuttons, with yellow backing plate (diameter 60 mm), according to ISO 13850 and IEC 60947-5-5** | | | | | | | | | |
| ***With red mushroom, diameter 30 mm, with positive latching*** | | | | | | | | | |
| Rotate to unlatch | 1 | 0 | 1 | -- | **3SU1150-1GB20-3CW0** | | 1 | 1 unit | 41J |
| | 2 | 0 | 2 | -- | **3SU1150-1GB20-3PW0** | | 1 | 1 unit | 41J |
| **EMERGENCY STOP mushroom pushbuttons, with self-adhesive yellow backing plate (diameter 75 mm), according to ISO 13850 and IEC 60947-5-5** | | | | | | | | | |
| | | | | | **Screw terminals** | | | | |
| ***With red mushroom, diameter 40 mm, with positive latching*** | | | | | | | | | |
| Pull to unlatch | 1 | 0 | 1 | NOT-HALT | **3SU1150-1HA20-1CH0** | | 1 | 1 unit | 41J |
| | | | | EMERGENCY STOP | **3SU1150-1HA20-1CG0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | NOT-HALT | **3SU1150-1HA20-1FH0** | | 1 | 1 unit | 41J |
| | | | | EMERGENCY STOP | **3SU1150-1HA20-1FG0** | | 1 | 1 unit | 41J |
| | | | | ARRET D'URGENCE | **3SU1150-1HA20-1FJ0** | | 1 | 1 unit | 41J |
| Rotate to unlatch | 1 | 0 | 1 | NOT-HALT | **3SU1150-1HB20-1CH0** | | 1 | 1 unit | 41J |
| | | | | EMERGENCY STOP | **3SU1150-1HB20-1CG0** | | 1 | 1 unit | 41J |
| | | | | ARRET D'URGENCE | **3SU1150-1HB20-1CJ0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | NOT-HALT | **3SU1150-1HB20-1FH0** | | 1 | 1 unit | 41J |
| | | | | EMERGENCY STOP | **3SU1150-1HB20-1FG0** | | 1 | 1 unit | 41J |
| | | | | ARRET D'URGENCE | **3SU1150-1HB20-1FJ0** | | 1 | 1 unit | 41J |
| | | | | | **Spring-loaded terminals** | | | | |
| Pull to unlatch | 1 | 0 | 1 | NOT-HALT | **3SU1150-1HA20-3CH0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | NOT-HALT | **3SU1150-1HA20-3FH0** | | 1 | 1 unit | 41J |
| | 2 | 0 | 2 | NOT-HALT | **3SU1150-1HA20-3PH0** | | 1 | 1 unit | 41J |
| Rotate to unlatch | 1 | 0 | 1 | -- | **3SU1150-1HB20-3CF0** | | 1 | 1 unit | 41J |
| | 2 | 0 | 2 | -- | **3SU1150-1HB20-3PF0** | | 1 | 1 unit | 41J |
| | 1 | 0 | 1 | NOT-HALT | **3SU1150-1HB20-3CH0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | NOT-HALT | **3SU1150-1HB20-3FH0** | | 1 | 1 unit | 41J |
| | 2 | 0 | 2 | NOT-HALT | **3SU1150-1HB20-3PH0** | | 1 | 1 unit | 41J |

3SU1150-1GB20-3CW0

3SU1150-1HB20-1CH0

3SU1150-1HB20-3CF0

Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

| Unlatching method | Number of contact modules | NO contacts | NC contacts | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **EMERGENCY STOP mushroom pushbuttons, without yellow backing plate, according to ISO 13850 and IEC 60947-5-5** | | | | | | | | |
| ***With red mushroom, diameter 40 mm, with positive latching*** | | | | | | | | |
| Rotate to unlatch | 2 | 0 | 2 | **3SU1150-1HB20-1PA0** | | 1 | 1 unit | 41J |

3SU1150-1HB20-1PA0

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

**Multi-unit packaging, see page 13/17.**

| Unlatching method | Supply voltage for light source at AC V | Supply voltage for light source at DC V | Number of contact modules | NO contacts | NC contacts | Marking | Spring-loaded terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **EMERGENCY STOP mushroom pushbuttons, can be illuminated, with yellow backing plate (diameter 60 mm), according to ISO 13850 and IEC 60947-5-5** | | | | | | | | | | | |
| ***With red mushroom, diameter 30 mm, with positive latching*** | | | | | | | | | | | |
| Rotate to unlatch | 24 | 24 | 1 | 0 | 1 | -- ➔ | **3SU1152-1GB20-3CW0** | | 1 | 1 unit | 41J |
| | | | 2 | 0 | 2 | -- ➔ | **3SU1152-1GB20-3PW0** | | 1 | 1 unit | 41J |

3SU1152-1GB20-3CW0

| **EMERGENCY STOP mushroom pushbuttons, can be illuminated, with self-adhesive yellow backing plate (diameter 75 mm), according to ISO 13850 and IEC 60947-5-5** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***With red mushroom, diameter 40 mm, with positive latching*** | | | | | | | | | | | |
| Rotate to unlatch | 24 | 24 | 2 | 0 | 2 | -- ➔ | **3SU1152-1HB20-3PF0** | | 1 | 1 unit | 41J |

3SU1152-1HB20-3PF0

| | | | | | | | Screw terminals | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rotate to unlatch | 24 ... 240 | 24 ... 240 | 1 | 0 | 2 | EMERGENCY STOP ➔ | **3SU1158-1HB20-1PT0** | | 1 | 1 unit | 41J |

3SU1158-1HB20-1PT0

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Operating principle | Supply voltage for light source at AC V | Supply voltage for light source at DC V | Color | Number of contact modules | NO contacts | NC contacts | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Selector switches** | | | | | | | | | | | |
| ***Short black actuators, 2 switch positions, can be illuminated*** | | | | | | | | | | | |
| Momentary contact, 45° (10:30/12 o'clock), reset from the right | -- | -- | White | 1 | 1 | 0 | **3SU1150-2BC60-1BA0** | | 1 | 1 unit | 41J |
| 3SU1150-2BF60-1BA0 | | | | | | | | | | | |
| Latching, 90° (10:30/1:30 o'clock) | -- | -- | White | 1 | 1 | 0 | **3SU1150-2BF60-1BA0** | | 1 | 1 unit | 41J |
| | | | | | 1 | 1 | **3SU1150-2BF60-1FA0** | | 1 | 1 unit | 41J |
| | | | | 2 | 1 | 1 | **3SU1150-2BF60-1MA0** | | 1 | 1 unit | 41J |
| 3SU1152-2BF20-1MA0 | 24 | 24 | Red | 2 | 1 | 1 | **3SU1152-2BF20-1MA0** | | 1 | 1 unit | 41J |
| ***Short black actuators, 3 switch positions, can be illuminated*** | | | | | | | | | | | |
| Momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right | -- | -- | White | 2 | 2 | 2 | **3SU1150-2BM60-1LA0** | | 1 | 1 unit | 41J |
| | | | | | 2 | 0 | **3SU1150-2BM60-1NA0** | | 1 | 1 unit | 41J |
| Latching, 2x45° (10:30/12/1:30 o'clock) | -- | -- | White | 2 | 2 | 2 | **3SU1150-2BL60-1LA0** | | 1 | 1 unit | 41J |
| | | | | | 2 | 0 | **3SU1150-2BL60-1NA0** | | 1 | 1 unit | 41J |
| ***Long black actuator, 2 switch positions, can be illuminated*** | | | | | | | | | | | |
| Latching, 90° (10:30/1:30 o'clock) | -- | -- | White | 1 | 1 | 0 | **3SU1150-2CF60-1BA0** | | 1 | 1 unit | 41J |
| | | | | 2 | 2 | 0 | **3SU1150-2CF60-1NA0** | | 1 | 1 unit | 41J |
| ***Long black actuator, 3 switch positions, can be illuminated*** | | | | | | | | | | | |
| Momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right | -- | -- | White | 2 | 1 | 1 | **3SU1150-2CM60-1NA0** | | 1 | 1 unit | 41J |
| **Spring-loaded terminals** | | | | | | | | | | | |
| ***Short black actuators, 2 switch positions, can be illuminated*** | | | | | | | | | | | |
| 3SU1150-2BL60-3NA0 | | | | | | | | | | | |
| Latching, 90° (10:30/1:30 o'clock) | -- | -- | White | 1 | 1 | 0 | **3SU1150-2BF60-3BA0** | | 1 | 1 unit | 41J |
| | | | | 2 | 1 | 1 | **3SU1150-2BF60-3MA0** | | 1 | 1 unit | 41J |
| ***Short black actuator, 3 switch positions, can be illuminated*** | | | | | | | | | | | |
| Momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right | -- | -- | White | 2 | 2 | 2 | **3SU1150-2BM60-3LA0** | | 1 | 1 unit | 41J |
| | | | | | 2 | 0 | **3SU1150-2BM60-3NA0** | | 1 | 1 unit | 41J |
| Latching, 2x45° (10:30/12/1:30 o'clock) | -- | -- | White | 2 | 2 | 2 | **3SU1150-2BL60-3LA0** | | 1 | 1 unit | 41J |
| | | | | | 2 | 0 | **3SU1150-2BL60-3NA0** | | 1 | 1 unit | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

### Key-operated switches

| Operating principle | Switch position for key removal | Number of contact modules | NO contacts | NC contacts | Number of keys | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| ***With RONIS lock, SB30, 2 switch positions*** | | | | | | | | | | |
| Latching, 90° (10:30/ 1:30 o'clock) | O+I | 1 | 1 | 0 | 2 | **3SU1150-4BF11-1BA0** | | 1 | 1 unit | 41J |
| | O+I | | 1 | 1 | 2 | **3SU1150-4BF11-1FA0** | | 1 | 1 unit | 41J |
| | | | | | | **Spring-loaded terminals** | | | | |
| | O+I | 1 | 1 | 0 | 2 | **3SU1150-4BF11-3BA0** | | 1 | 1 unit | 41J |
| | O+I | | 1 | 1 | 2 | **3SU1150-4BF11-3FA0** | | 1 | 1 unit | 41J |
| | O | 2 | 0 | 2 | 2 | **3SU1150-4BF01-3PA0** | | 1 | 1 unit | 41J |

3SU1150-4BF11-1BA0

## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

### Coordinate switches

| Number of NO contacts (1 per direction) | Operating principle | Direction of actuation | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| ***Without mechanical interlock, 2 switch positions*** | | | | | | | |
| 2 | Momentary contact | Horizontal | **3SU1150-7AC88-1NA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1150-7AD88-1NA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal | **3SU1150-7AA88-1NA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1150-7AB88-1NA0** | | 1 | 1 unit | 41J |
| ***Without mechanical interlock, 4 switch positions*** | | | | | | | |
| 4 | Momentary contact | Horizontal/vertical | **3SU1150-7AF88-1QA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal/vertical | **3SU1150-7AE88-1QA0** | | 1 | 1 unit | 41J |
| ***With mechanical interlock, 2 switch positions*** | | | | | | | |
| 2 | Momentary contact | Horizontal | **3SU1150-7BC88-1NA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1150-7BD88-1NA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal | **3SU1150-7BA88-1NA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1150-7BB88-1NA0** | | 1 | 1 unit | 41J |
| ***With mechanical interlock, 4 switch positions*** | | | | | | | |
| 4 | Momentary contact | Horizontal/vertical | **3SU1150-7BF88-1QA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal/vertical | **3SU1150-7BE88-1QA0** | | 1 | 1 unit | 41J |

3SU1150-7AF88-1QA0

3SU1150-7BF88-1QA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Operational voltage at AC | Operational voltage at DC | Color of actuating element | Color of light source | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| V | V | | | | | | | |
| **Indicator lights** | | | | | | | | |
| ***With smooth lens and integrated LED*** | | | | | | | | |
| 24 | 24 | Amber | Amber | **3SU1152-6AA00-1AA0** | | 1 | 1 unit | 41J |
| | | Red | Red | **3SU1152-6AA20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1152-6AA30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1152-6AA40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1152-6AA50-1AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1152-6AA60-1AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1152-6AA70-1AA0** | | 1 | 1 unit | 41J |
| 110 | -- | Amber | Amber | **3SU1153-6AA00-1AA0** | | 1 | 1 unit | 41J |
| | | Red | Red | **3SU1153-6AA20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1153-6AA30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1153-6AA40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1153-6AA50-1AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1153-6AA60-1AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1153-6AA70-1AA0** | | 1 | 1 unit | 41J |
| 230 | -- | Red | Red | **3SU1156-6AA20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1156-6AA30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1156-6AA40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1156-6AA50-1AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1156-6AA60-1AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1156-6AA70-1AA0** | | 1 | 1 unit | 41J |
| | | | | **Spring-loaded terminals** | | | | |
| 24 | 24 | Red | Red | **3SU1152-6AA20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1152-6AA30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1152-6AA40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1152-6AA50-3AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1152-6AA60-3AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1152-6AA70-3AA0** | | 1 | 1 unit | 41J |
| 110 | -- | Red | Red | **3SU1153-6AA20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1153-6AA30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1153-6AA40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1153-6AA50-3AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1153-6AA60-3AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1153-6AA70-3AA0** | | 1 | 1 unit | 41J |
| 230 | -- | Red | Red | **3SU1156-6AA20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | Yellow | **3SU1156-6AA30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | Green | **3SU1156-6AA40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | Blue | **3SU1156-6AA50-3AA0** | | 1 | 1 unit | 41J |
| | | White | White | **3SU1156-6AA60-3AA0** | | 1 | 1 unit | 41J |
| | | Clear | White | **3SU1156-6AA70-3AA0** | | 1 | 1 unit | 41J |

3SU1152-6AA50-1AA0

3SU1156-6AA60-1AA0

3SU1152-6AA40-3AA0

3SU1156-6AA20-3AA0

13



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Operational voltage at AC | Operational voltage at DC | Volume level | Degree of protection | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| V | V | dB/cm | | | | | | |
| **Acoustic signaling devices** | | | | | | | | |
| 24 | 24 | 80/10 | IP40 | **3SU1200-6KB10-1AA0** | | 1 | 1 unit | 41J |
| 110 | -- | 80/10 | IP40 | **3SU1200-6KC10-1AA0** | | 1 | 1 unit | 41J |
| 230 | -- | 80/10 | IP40 | **3SU1200-6KF10-1AA0** | | 1 | 1 unit | 41J |
| 24 | 24 | 75/10 | IP69 | **3SU1200-6LB10-1AA0** | | 1 | 1 unit | 41J |
| 110 | -- | 75/10 | IP69 | **3SU1200-6LC10-1AA0** | | 1 | 1 unit | 41J |
| 230 | -- | 75/10 | IP69 | **3SU1200-6LF10-1AA0** | | 1 | 1 unit | 41J |

3SU1200-6KB10-1AA0

## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Version of actuating element | Operating principle | Adjustable resistance | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | | kΩ | | | | | |
| **Potentiometers** | | | | | | | |
| **Rotary knob** | Stepless | 1 | **3SU1200-2PQ10-1AA0** | | 1 | 1 unit | 41J |
| | | 2.2 | **3SU1200-2PW10-1AA0** | | 1 | 1 unit | 41J |
| | | 4.7 | **3SU1200-2PR10-1AA0** | | 1 | 1 unit | 41J |
| | | 10 | **3SU1200-2PS10-1AA0** | | 1 | 1 unit | 41J |
| | | 47 | **3SU1200-2PT10-1AA0** | | 1 | 1 unit | 41J |
| | | 100 | **3SU1200-2PU10-1AA0** | | 1 | 1 unit | 41J |
| | | 470 | **3SU1200-2PV10-1AA0** | | 1 | 1 unit | 41J |

3SU1200-2PQ10-1AA0

Labeling plates for potentiometers, see page 13/124.

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## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Version | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Pushbuttons with extended stroke** | | | | | | |
| For actuating relays, can only be combined with extension plunger, no contact module or LED module required | | | | | | |
| **Pushbuttons with flat button** | Red | **3SU1250-0EB20-0AA0** | | 1 | 1 unit | 41J |
| | Green | **3SU1250-0EB40-0AA0** | | 1 | 1 unit | 41J |
| | Blue | **3SU1250-0EB50-0AA0** | | 1 | 1 unit | 41J |
| **Pushbuttons with raised button** | Black | **3SU1250-0FB10-0AA0** | | 1 | 1 unit | 41J |
| **Pushbuttons with flat transparent button for insertion of insert labels** | Red | **3SU1251-0EB20-0AA0** | | 1 | 1 unit | 41J |
| | Clear | **3SU1251-0EB70-0AA0** | | 1 | 1 unit | 41J |

3SU1250-0EB40-0AA0

3SU1250-0FB10-0AA0

3SU1251-0EB20-0AA0

| Version | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Accessories** | | | | | | | |
| **Extension plunders**<br>For compensation of the clearance between the pushbutton and the resetting plunger of an overload relay | Plastic | Gray | **3SU1900-0KG10-0AA0** | | 1 | 1 unit | 41J |

3SU1900-0KG10-0AA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Version of actuating element / Front ring version | Operating principle / Unlatching method | Color, marking | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Pushbuttons** | | | | | | | |
| 3SU1050-0AB40-0AC0 **Pushbuttons with flat button** Standard | Momentary contact | Black | **3SU1050-0AB10-0AA0** | | 1 | 1 unit | 41J |
| | | Black, "O" | **3SU1050-0AB10-0AD0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-0AB20-0AA0** | | 1 | 1 unit | 41J |
| | | Red, "O" | **3SU1050-0AB20-0AD0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1050-0AB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1050-0AB40-0AA0** | | 1 | 1 unit | 41J |
| | | Green, "I" | **3SU1050-0AB40-0AC0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1050-0AB50-0AA0** | | 1 | 1 unit | 41J |
| | | Blue, "R" | **3SU1050-0AB50-0AR0** | | 1 | 1 unit | 41J |
| | | White | **3SU1050-0AB60-0AA0** | | 1 | 1 unit | 41J |
| | | White, "⊖" | **3SU1050-0AB60-0AB0** | | 1 | 1 unit | 41J |
| | | White, "I" | **3SU1050-0AB60-0AC0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1050-0AB70-0AA0** | | 1 | 1 unit | 41J |
| | | Gray | **3SU1050-0AB80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-0AA30-0AA0 | Latching<br>Push to unlatch | Black | **3SU1050-0AA10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-0AA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1050-0AA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1050-0AA40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1050-0AA50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1050-0AA60-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-0BB20-0AA0 **Pushbuttons with raised button** Standard | Momentary contact | Black | **3SU1050-0BB10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-0BB20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1050-0BB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1050-0BB40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1050-0BB50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1050-0BB60-0AA0** | | 1 | 1 unit | 41J |
| | Latching<br>Push to unlatch | Red | **3SU1050-0BA20-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-0CB50-0AA0 **Pushbuttons with flat button** Raised | Momentary contact | Black | **3SU1050-0CB10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-0CB20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1050-0CB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1050-0CB40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1050-0CB50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1050-0CB60-0AA0** | | 1 | 1 unit | 41J |
| 3SU1051-0CB40-0AA0 **Illuminated pushbuttons with flat button** Raised | Momentary contact | Green | **3SU1051-0CB40-0AA0** | | 1 | 20 units | 41J |

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**Multi-unit packaging, see page 13/17.**

## Pushbuttons

| Version of actuating element<br>Front ring version | Operating principle<br>Unlatching method | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| <br>3SU1051-0AB30-0AA0 | | | | | | | |
| **Illuminated pushbuttons with flat button**<br>Standard | Momentary contact | Amber | **3SU1051-0AB00-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1051-0AB20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1051-0AB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1051-0AB40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1051-0AB50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1051-0AB60-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1051-0AB70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1051-0AA20-0AA0 | | | | | | | |
| | Latching<br>Push to unlatch | Red | **3SU1051-0AA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1051-0AA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1051-0AA40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1051-0AA50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1051-0AA60-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1051-0AA70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1051-0BB20-0AA0 | | | | | | | |
| **Illuminated pushbuttons with raised button**<br>Standard | Momentary contact | Amber | **3SU1051-0BB00-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1051-0BB20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1051-0BB30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1051-0BB40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1051-0BB50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1051-0BB60-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1051-0BB70-0AA0** | | 1 | 1 unit | 41J |



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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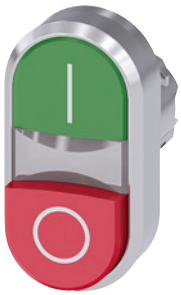
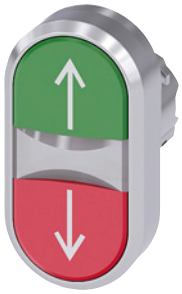
## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Version of actuating element | Operating principle | Color | Marking Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Twin pushbuttons** | | | | | | | | |
| 3SU1050-3AB66-0AL0 | | | | | | | | |
| **Twin pushbuttons** flat, flat | Momentary contact | Green/red | --<br>"I"/"O" | **3SU1050-3AB42-0AA0**<br>**3SU1050-3AB42-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | White/black | --<br>"I"/"O" | **3SU1050-3AB61-0AA0**<br>**3SU1050-3AB61-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | White/white | --<br>"–"/"+"<br>Arrows, hor. | **3SU1050-3AB66-0AA0**<br>**3SU1050-3AB66-0AL0**<br>**3SU1050-3AB66-0AM0** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| | | Black/black | --<br>⊙<br>○<br>5264/5265 (IEC 60417) | **3SU1050-3AB11-0AA0**<br>**3SU1050-3AB11-0AQ0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
|  3SU1050-3BB42-0AK0 | | | | | | | | |
| **Twin pushbuttons** flat, raised | Momentary contact | Green/red | --<br>"I"/"O" | **3SU1050-3BB42-0AA0**<br>**3SU1050-3BB42-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | White/black | --<br>"I"/"O" | **3SU1050-3BB61-0AA0**<br>**3SU1050-3BB61-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
|  3SU1051-3AB42-0AN0 | | | | | | | | |
| **Twin pushbuttons** flat, flat, illuminated | Momentary contact | Green/red | --<br>"I"/"O"<br>Arrows, vert. | **3SU1051-3AB42-0AA0**<br>**3SU1051-3AB42-0AK0**<br>**3SU1051-3AB42-0AN0** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| | | White/black | --<br>"I"/"O" | **3SU1051-3AB61-0AA0**<br>**3SU1051-3AB61-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| 3SU1051-3BB61-0AA0 | | | | | | | | |
| **Twin pushbuttons** flat, raised, illuminated | Momentary contact | Green/red | --<br>"I"/"O" | **3SU1051-3BB42-0AA0**<br>**3SU1051-3BB42-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | White/black | --<br>"I"/"O" | **3SU1051-3BB61-0AA0**<br>**3SU1051-3BB61-0AK0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |

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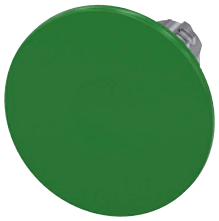
## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Version of actuating element | Operating principle<br>Unlatching method | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Mushroom pushbuttons** | | | | | | | |
| ***2 switch positions*** | | | | | | | |
| <br>3SU1050-1AD20-0AA0 | | | | | | | |
| **Mushroom pushbuttons**<br>30 mm diameter, 2 positions | Momentary contact | Black | **3SU1050-1AD10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-1AD20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1050-1AD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1050-1AD40-0AA0** | | 1 | 1 unit | 41J |
| | Latching<br>Pull to unlatch | Black | **3SU1050-1AA10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-1AA20-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1050-1BD30-0AA0 | | | | | | | |
| **Mushroom pushbuttons**<br>40 mm diameter, 2 positions | Momentary contact | Black | **3SU1050-1BD10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-1BD20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1050-1BD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1050-1BD40-0AA0** | | 1 | 1 unit | 41J |
| | Latching<br>Pull to unlatch | Black | **3SU1050-1BA10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-1BA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1050-1BA30-0AA0** | | 1 | 1 unit | 41J |
|  <br>3SU1050-1CD40-0AA0 | | | | | | | |
| **Mushroom pushbuttons**<br>60 mm diameter, 2 positions | Momentary contact | Black | **3SU1050-1CD10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-1CD20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1050-1CD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1050-1CD40-0AA0** | | 1 | 1 unit | 41J |
| | Latching<br>Pull to unlatch | Black | **3SU1050-1CA10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1050-1CA20-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1051-1AD60-0AA0 | | | | | | | |
| **Mushroom pushbuttons**<br>30 mm diameter, 2 positions, illuminated | Momentary contact | Yellow | **3SU1051-1AD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1051-1AD40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1051-1AD50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1051-1AD60-0AA0** | | 1 | 1 unit | 41J |
| | Latching<br>Pull to unlatch | Amber | **3SU1051-1AA00-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1051-1AA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1051-1AA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1051-1AA40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1051-1AA50-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1051-1AA70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1051-1BD40-0AA0 | | | | | | | |
| **Mushroom pushbuttons**<br>40 mm diameter, 2 positions, illuminated | Momentary contact | Amber | **3SU1051-1BD00-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1051-1BD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1051-1BD40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1051-1BD60-0AA0** | | 1 | 1 unit | 41J |
| | Latching<br>Pull to unlatch | Amber | **3SU1051-1BA00-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1051-1BA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1051-1BA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1051-1BA40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1051-1BA50-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1051-1BA70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1051-1CA50-0AA0 | | | | | | | |
| **Mushroom pushbuttons**<br>60 mm diameter, 2 positions, illuminated | Momentary contact<br>None | Amber | **3SU1051-1CD00-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1051-1CD30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1051-1CD40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1051-1CD60-0AA0** | | 1 | 1 unit | 41J |
| | Latching<br>Pull to unlatch | Red | **3SU1051-1CA20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1051-1CA30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1051-1CA40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1051-1CA50-0AA0** | | 1 | 1 unit | 41J |
| | | Clear | **3SU1051-1CA70-0AA0** | | 1 | 1 unit | 41J |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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Multi-unit packaging, see page 13/17.

| Version of actuating element | Operating principle<br>Unlatching method | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Mushroom pushbuttons** | | | | | | | |
| ***2 switch positions*** | | | | | | | |
| <br>3SU1050-1HB10-0AA0 | | | | | | | |
| **Mushroom pushbuttons**<br>with raised mushroom, 40 mm diameter, 2 positions | With positive latching<br>Rotate to unlatch | Black<br>Yellow | **3SU1050-1HB10-0AA0**<br>**3SU1050-1HB30-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| ***3 switch positions*** | | | | | | | |
| <br>3SU1050-1EA20-0AA0 | | | | | | | |
| **Mushroom pushbuttons**<br>40 mm diameter, 3 positions | Momentary contact | Black<br>Red | **3SU1050-1ED10-0AA0**<br>**3SU1050-1ED20-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | Latching<br>Pull to unlatch | Black<br>Red | **3SU1050-1EA10-0AA0**<br>**3SU1050-1EA20-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| <br>3SU1051-1EA40-0AA0 | | | | | | | |
| **Mushroom pushbuttons**<br>40 mm diameter, 3 positions, illuminated | Momentary contact | Red<br>White | **3SU1051-1ED20-0AA0**<br>**3SU1051-1ED60-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | Latching<br>Pull to unlatch | Red<br>Green | **3SU1051-1EA20-0AA0**<br>**3SU1051-1EA40-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |

## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Version of actuating element | Outer diameter of mushroom | Make of lock | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **EMERGENCY STOP mushroom pushbuttons, according to ISO 13850 and IEC 60947-5-5** | | | | | | | | |
| ***With pull to unlatch*** | | | | | | | | |
| <br>3SU1050-1HA20-0AA0 | | | | | | | | |
| With positive latching, 2 positions | 40 | -- | Red | **3SU1050-1HA20-0AA0** | | 1 | 1 unit | 41J |
| ***With rotate to unlatch*** | | | | | | | | |
| <br>3SU1050-1GB20-0AA0 | | | | | | | | |
| With positive latching, 2 positions | 33.8 | -- | Red | **3SU1050-1GB20-0AA0** | | 1 | 1 unit | 41J |

13

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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**Multi-unit packaging, see page 13/17.**

| Version of actuating element | Outer diameter of mushroom | Make of lock | Color | Number of keys | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **EMERGENCY STOP mushroom pushbuttons, according to ISO 13850 and IEC 60947-5-5** | | | | | | | | | |
| ***With rotate to unlatch*** | | | | | | | | | |
| With positive latching, 2 positions | 40 | -- | Red | -- | **3SU1050-1HB20-0AA0** | | 1 | 1 unit | 41J |
| | 60 | -- | Red | -- | **3SU1050-1JB20-0AA0** | | 1 | 1 unit | 41J |
| With latching, 2 positions | 40 | -- | Red | -- | **3SU1050-1LB20-0AA0** | | 1 | 1 unit | 41J |
| ***With rotate to unlatch, can be illuminated*** | | | | | | | | | |
| With positive latching, 2 positions | 33.8 | -- | Red | -- | **3SU1051-1GB20-0AA0** | | 1 | 1 unit | 41J |
| | 40 | -- | Red | -- | **3SU1051-1HB20-0AA0** | | 1 | 1 unit | 41J |
| | 60 | -- | Red | -- | **3SU1051-1JB20-0AA0** | | 1 | 1 unit | 41J |
| ***With key-operated release*** | | | | | | | | | |
| With positive latching, 2 positions | 40 | RONIS, SB30 | Red | 2 | **3SU1050-1HF20-0AA0** | | 1 | 1 unit | 41J |
| | | RONIS, 455 | Red | 2 | **3SU1050-1HG20-0AA0** | | 1 | 1 unit | 41J |
| | | RONIS, 421 | Red | 2 | **3SU1050-1HH20-0AA0** | | 1 | 1 unit | 41J |
| | | BKS, S1 | Red | 2 | **3SU1050-1HK20-0AA0** | | 1 | 1 unit | 41J |
| | | BKS, E7 | Red | 0 | **3SU1050-1HM20-0AA0** | | 1 | 1 unit | 41J |
| | | BKS, E9 | Red | 0 | **3SU1050-1HN20-0AA0** | | 1 | 1 unit | 41J |
| | | O.M.R. 73037 | Red | 2 | **3SU1050-1HQ20-0AA0** | | 1 | 1 unit | 41J |
| | | Siemens, SSG10[1)] | Red | 2 | **3SU1050-1HR20-0AA0** | | 1 | 1 unit | 41J |
| | | Siemens, SSP9[1)] | Red | 2 | **3SU1050-1HS20-0AA0** | | 1 | 1 unit | 41J |
| | | Siemens, VL5[1)] | Black | 2 | **3SU1050-1HU10-0AA0** | | 1 | 1 unit | 41J |
| | | | Red | 2 | **3SU1050-1HU20-0AA0** | | 1 | 1 unit | 41J |
| | | Siemens, VL1[1)] | Red | 2 | **3SU1050-1HV20-0AA0** | | 1 | 1 unit | 41J |

3SU1050-1HB20-0AA0

3SU1050-1JB20-0AA0

3SU1051-1HB20-0AA0

3SU1050-1HF20-0AA0

3SU1050-1HQ20-0AA0

3SU1050-1HR20-0AA0

[1)] Siemens lock (compatible with CES locks).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

### Toggle switches

| Number of switching positions | Number of command points | Color of actuating element | Operating principle of the actuating element | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| 2 | 1 | Black | Latching | **3SU1050-3EA10-0AA0** | | 1 | 1 unit | 41J |
| | | | Momentary contact, reset from above | **3SU1050-3EC10-0AA0** | | 1 | 1 unit | 41J |

3SU1050-3EA10-0AA0

## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

### Selector switches

***2 switch positions, can be illuminated***

| Version of actuating element | Operating principle | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Selector, short black actuator | Momentary contact, 45° (10:30/12 o'clock), reset from center to left | Black | **3SU1052-2BC10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2BC20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1052-2BC30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2BC40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1052-2BC50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2BC60-0AA0** | | 1 | 1 unit | 41J |
| | Latching, 90° (10:30/1:30 o'clock) | Amber | **3SU1052-2BF00-0AA0** | | 1 | 1 unit | 41J |
| | | Black | **3SU1052-2BF10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2BF20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1052-2BF30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2BF40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1052-2BF50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2BF60-0AA0** | | 1 | 1 unit | 41J |
| Selector, long black actuator | Momentary contact, 45° (10:30/12 o'clock), reset from center to left | Black | **3SU1052-2CC10-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1052-2CC30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2CC40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1052-2CC50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2CC60-0AA0** | | 1 | 1 unit | 41J |
| | Latching, 90° (10:30/1:30 o'clock)  | Black | **3SU1052-2CF10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2CF20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1052-2CF30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2CF40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1052-2CF50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2CF60-0AA0** | | 1 | 1 unit | 41J |

3SU1052-2BC20-0AA0

3SU1052-2BF40-0AA0

3SU1052-2CF60-0AA0

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Multi-unit packaging, see page 13/17.

## Selector switches

***3 switch positions, can be illuminated***

| Version of actuating element | Operating principle | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| 3SU1052-2BM50-0AA0 | | | | | | | |
| Selector, short black actuator | Momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right | Amber | **3SU1052-2BM00-0AA0** | | 1 | 1 unit | 41J |
| | | Black | **3SU1052-2BM10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2BM20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1052-2BM30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2BM40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1052-2BM50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2BM60-0AA0** | | 1 | 1 unit | 41J |
| 3SU1052-2BL30-0AA0 | | | | | | | |
| | Latching, 2x45° (10:30/12/1:30 o'clock) | Amber | **3SU1052-2BL00-0AA0** | | 1 | 1 unit | 41J |
| | | Black | **3SU1052-2BL10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2BL20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1052-2BL30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2BL40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2BL60-0AA0** | | 1 | 1 unit | 41J |
| 3SU1052-2BN20-0AA0 | | | | | | | |
| | Momentary contact/latching, 2x45° (10:30/12/1:30 o'clock), reset from the left, latching to the right | Black | **3SU1052-2BP10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2BP20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2BP40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2BP60-0AA0** | | 1 | 1 unit | 41J |
| | Latching/momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from the right, latching to the left | Black | **3SU1052-2BN10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2BN20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2BN40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2BN60-0AA0** | | 1 | 1 unit | 41J |
| 3SU1052-2CL40-0AA0 | | | | | | | |
| Selector, long black actuator | Momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right | Black | **3SU1052-2CM10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2CM20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2CM40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2CM60-0AA0** | | 1 | 1 unit | 41J |
| | Latching, 2x45° (10:30/12/1:30 o'clock) | Black | **3SU1052-2CL10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2CL20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1052-2CL40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2CL60-0AA0** | | 1 | 1 unit | 41J |
| | Momentary contact/latching, 2x45° (10:30/12/1:30 o'clock), reset from the left, latching to the right | Black | **3SU1052-2CP10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2CP20-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2CP60-0AA0** | | 1 | 1 unit | 41J |
| | Latching/momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from the right, latching to the left | Black | **3SU1052-2CN10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1052-2CN20-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1052-2CN60-0AA0** | | 1 | 1 unit | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

## Selector switches

3SU1050-2AS60-0AA0

| Version of actuating element | Operating principle | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| ***4 switch positions*** | | | | | | | |
| Rotary knob | Latching, 4x90° (3/6/9/12 o'clock) | White | **3SU1050-2AS60-0AA0** | | 1 | 1 unit | 41J |

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## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Operating principle | Make of lock | Switch position for key removal | Number of keys | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Key-operated switches** | | | | | | | | |
| ***2 switch positions*** | | | | | | | | |
| 3SU1050-4BC01-0AA0 | | | | | | | | |
| Momentary contact, 45° (10:30/12 o'clock), reset from center to left | RONIS, SB30 | O | 2 | **3SU1050-4BC01-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 455 | O | 2 | **3SU1050-4CC01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73037, red | O | 2 | **3SU1050-4FC01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73038, light blue | O | 2 | **3SU1050-4GC01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73034, black | O | 2 | **3SU1050-4HC01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73033, yellow | O | 2 | **3SU1050-4JC01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1] | O | 2 | **3SU1050-5BC01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, LSG1[1] | O | 2 | **3SU1050-5HC01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, VL5[1] | O | 2 | **3SU1050-5KC01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, STGH10[1] | O | 2 | **3SU1050-5LC01-0AA0** | | 1 | 1 unit | 41J |
| | BKS, S1 | O | 2 | **3SU1050-5PC01-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-4BF01-0AA0 | | | | | | | | |
| Latching, 90° (10:30/ 1:30 o'clock) | RONIS, SB30 | O | 2 | **3SU1050-4BF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-4BF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-4BF21-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 455 | O | 2 | **3SU1050-4CF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-4CF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-4CF21-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 421 | O+I | 2 | **3SU1050-4DF11-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-4GF11-0AA0 | | | | | | | | |
| | O.M.R. 73037, red | O | 2 | **3SU1050-4FF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-4FF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-4FF21-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73038, light blue | O | 2 | **3SU1050-4GF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-4GF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-4GF21-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73034, black | O | 2 | **3SU1050-4HF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-4HF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-4HF21-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73033, yellow | O | 2 | **3SU1050-4JF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-4JF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-4JF21-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-5BF01-0AA0 | | | | | | | | |
| | Siemens, SSG10[1] | O | 2 | **3SU1050-5BF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-5BF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-5BF21-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1] with key monitoring | O | 2 | **3SU1050-5JF01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, LSG1[1] | O | 2 | **3SU1050-5HF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-5HF11-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, VL5[1] | O | 2 | **3SU1050-5KF01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, STGH10[1] | O+I | 2 | **3SU1050-5LF11-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-5PF01-0AA0 | | | | | | | | |
| | BKS, S1 | O | 2 | **3SU1050-5PF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-5PF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-5PF21-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E1 | O | 0 | **3SU1050-5QF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 0 | **3SU1050-5QF11-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E2 | O | 0 | **3SU1050-5RF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 0 | **3SU1050-5RF11-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E7 | O | 0 | **3SU1050-5SF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 0 | **3SU1050-5SF11-0AA0** | | 1 | 1 unit | 41J |
| | BKS, E9 | O | 0 | **3SU1050-5TF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 0 | **3SU1050-5TF11-0AA0** | | 1 | 1 unit | 41J |

[1] Siemens lock (compatible with CES locks).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

## Key-operated switches

***3 switch positions***

| Operating principle | Make of lock | Switch position for key removal | Number of keys | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| 3SU1050-4BM01-0AA0 | | | | | | | | |
| Momentary contact, 2x45° (10:30/12/ 1:30 o'clock), reset from left + right | RONIS, SB30 | O | 2 | **3SU1050-4BM01-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 455 | O | 2 | **3SU1050-4CM01-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73034, black | O | 2 | **3SU1050-4HM01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1)] | O | 2 | **3SU1050-5BM01-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, STGH10[1)] | O | 2 | **3SU1050-5LM01-0AA0** | | 1 | 1 unit | 41J |
| | BKS, S1 | O | 2 | **3SU1050-5PM01-0AA0** | | 1 | 1 unit | 41J |
| Latching, 2x45° (10:30/12/ 1:30 o'clock) | RONIS, SB30 | O | 2 | **3SU1050-4BL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1050-4BL11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-4BL21-0AA0** | | 1 | 1 unit | 41J |
| | | II | 2 | **3SU1050-4BL31-0AA0** | | 1 | 1 unit | 41J |
| | | I+II | 2 | **3SU1050-4BL41-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-4BL51-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 455 | O | 2 | **3SU1050-4CL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1050-4CL11-0AA0** | | 1 | 1 unit | 41J |
| | RONIS, 421 | | 2 | **3SU1050-4DL11-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-4FL11-0AA0 | O.M.R. 73037, red | I+O+II | 2 | **3SU1050-4FL11-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73038, light blue | O | 2 | **3SU1050-4GL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+III | 2 | **3SU1050-4GL11-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73034, black | O | 2 | **3SU1050-4HL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1050-4HL11-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-5BL01-0AA0 | Siemens, SSG10[1)] | O | 2 | **3SU1050-5BL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1050-5BL11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-5BL21-0AA0** | | 1 | 1 unit | 41J |
| | | II | 2 | **3SU1050-5BL31-0AA0** | | 1 | 1 unit | 41J |
| | | I+II | 2 | **3SU1050-5BL41-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1)] with key monitoring | O | 2 | **3SU1050-5JL01-0AA0** | | 1 | 1 unit | 41J |
| | BKS, S1 | O | 2 | **3SU1050-5PL01-0AA0** | | 1 | 1 unit | 41J |
| | | I+O+II | 2 | **3SU1050-5PL11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-5PL21-0AA0** | | 1 | 1 unit | 41J |
| | | I+II | 2 | **3SU1050-5PL41-0AA0** | | 1 | 1 unit | 41J |
| 3SU1050-4BP01-0AA0 | | | | | | | | |
| Momentary contact/latching, 2x45° (10:30/12/ 1:30 o'clock), reset from the left, latching to the right | RONIS, SB30 | O | 2 | **3SU1050-4BP01-0AA0** | | 1 | 1 unit | 41J |
| | | O+II | 2 | **3SU1050-4BP61-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73034, black | II | 2 | **3SU1050-4HP31-0AA0** | | 1 | 1 unit | 41J |
| | O.M.R. 73033, yellow | II | 2 | **3SU1050-4JP31-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1)] | O | 2 | **3SU1050-5BP01-0AA0** | | 1 | 1 unit | 41J |
| | | II | 2 | **3SU1050-5BP31-0AA0** | | 1 | 1 unit | 41J |
| | | O+II | 2 | **3SU1050-5BP61-0AA0** | | 1 | 1 unit | 41J |
| | BKS, S1 | O | 2 | **3SU1050-5PP01-0AA0** | | 1 | 1 unit | 41J |
| Latching/ momentary contact, 2x45° (10:30/12/ 1:30 o'clock), reset from the right, latching to the left | RONIS, SB30 | O | 2 | **3SU1050-4BN01-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-4BN21-0AA0** | | 1 | 1 unit | 41J |
| | | O+IO+I | 2 | **3SU1050-4BN51-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, SSG10[1)] | O | 2 | **3SU1050-5BN01-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1050-5BN21-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1050-5BN51-0AA0** | | 1 | 1 unit | 41J |
| | Siemens, STGH10[1)] | O+I | 2 | **3SU1050-5LN51-0AA0** | | 1 | 1 unit | 41J |

[1)] Siemens lock (compatible with CES locks)

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## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Number of NO contacts (1 per direction) | Operating principle | Direction of actuation | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Coordinate switches** | | | | | | | |
| ***Without mechanical interlock, 2 switch positions*** | | | | | | | |
| 2 | Momentary contact | Horizontal | **3SU1050-7AC88-0AA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1050-7AD88-0AA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal | **3SU1050-7AA88-0AA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1050-7AB88-0AA0** | | 1 | 1 unit | 41J |
| ***Without mechanical interlock, 4 switch positions*** | | | | | | | |
| 4 | Momentary contact | Horizontal/vertical | **3SU1050-7AF88-0AA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal/vertical | **3SU1050-7AE88-0AA0** | | 1 | 1 unit | 41J |
| ***With mechanical interlock, 2 switch positions*** | | | | | | | |
| 2 | Momentary contact | Horizontal | **3SU1050-7BC88-0AA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1050-7BD88-0AA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal | **3SU1050-7BA88-0AA0** | | 1 | 1 unit | 41J |
| | | Vertical | **3SU1050-7BB88-0AA0** | | 1 | 1 unit | 41J |
| ***With mechanical interlock, 4 switch positions*** | | | | | | | |
| 4 | Momentary contact | Horizontal/vertical | **3SU1050-7BF88-0AA0** | | 1 | 1 unit | 41J |
| | Latching | Horizontal/vertical | **3SU1050-7BE88-0AA0** | | 1 | 1 unit | 41J |

3SU1050-7AC88-0AA0

3SU1050-7BC88-0AA0

## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Product version | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Indicator lights** | | | | | | |
| **With smooth lens** | Amber | **3SU1051-6AA00-0AA0** | | 1 | 5 units | 41J |
| | Red | **3SU1051-6AA20-0AA0** | | 1 | 5 units | 41J |
| | Yellow | **3SU1051-6AA30-0AA0** | | 1 | 5 units | 41J |
| | Green | **3SU1051-6AA40-0AA0** | | 1 | 5 units | 41J |
| | Blue | **3SU1051-6AA50-0AA0** | | 1 | 5 units | 41J |
| | White | **3SU1051-6AA60-0AA0** | | 1 | 5 units | 41J |
| | Clear | **3SU1051-6AA70-0AA0** | | 1 | 5 units | 41J |

3SU1051-6AA40-0AA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

| Multi-unit packaging, see page 13/17. | Mounting diameter | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | mm | | | | | | | |
| **Sealing plugs**[1] | | | | | | | | |
| 3SU1950-0FA80-0AA0 | 22 | Metal, shiny | Silver | **3SU1950-0FA80-0AA0** | | 1 | 5 units | 41J |

[1] The sealing plug is mounted with a holder.
Modules might already be mounted on the holder.

| | Product version | Mounting diameter | Accessory material | Accessory color | **Screw terminals** | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | mm | | | Article No. / Price per PU | | | |
| **USB connections** | | | | | | | | |
| 3SU1950-0GA80-0AA0 | USB 3.0 | 22 | Metal, shiny | Silver | **3SU1950-0GA80-0AA0** | 1 | 1 unit | 41J |
| **RJ45 connections** | | | | | | | | |
| 3SU1950-0GB80-0AA0 | RJ-45 Cat. 5e | 22 | Metal, shiny | Silver | **3SU1950-0GB80-0AA0** | 1 | 1 unit | 41J |

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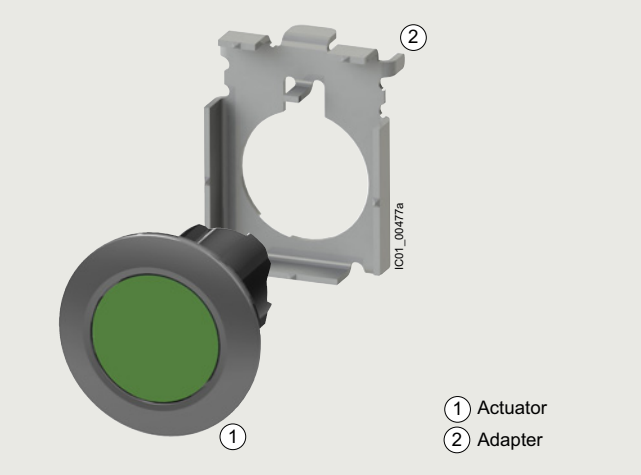
## Overview




Actuators and indicators, flat, 30 mm, metal, matte, including adapter (adapter included in scope of supply)

## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Version | Operating principle | Unlatching method | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Pushbuttons** | | | | | | | | |
| 3SU1060-0JB50-0AA0 | | | | | | | | |
| **Pushbuttons** with flat button | Momentary contact | -- | Black | **3SU1060-0JB10-0AA0** | | 1 | 1 unit | 41J |
| | | | Red | **3SU1060-0JB20-0AA0** | | 1 | 1 unit | 41J |
| | | | Yellow | **3SU1060-0JB30-0AA0** | | 1 | 1 unit | 41J |
| | | | Green | **3SU1060-0JB40-0AA0** | | 1 | 1 unit | 41J |
| | | | Blue | **3SU1060-0JB50-0AA0** | | 1 | 1 unit | 41J |
| | | | White | **3SU1060-0JB60-0AA0** | | 1 | 1 unit | 41J |
| | | | Gray | **3SU1060-0JB80-0AA0** | | 1 | 10 units | 41J |
| | | | Amber | **3SU1060-0JB00-0AA0** | | 1 | 1 unit | 41J |
| 3SU1060-0JA20-0AA0 | | | | | | | | |
| | Latching | Push to unlatch | Black | **3SU1060-0JA10-0AA0** | | 1 | 1 unit | 41J |
| | | | Red | **3SU1060-0JA20-0AA0** | | 1 | 1 unit | 41J |
| | | | Yellow | **3SU1060-0JA30-0AA0** | | 1 | 1 unit | 41J |
| | | | Green | **3SU1060-0JA40-0AA0** | | 1 | 1 unit | 41J |
| | | | Blue | **3SU1060-0JA50-0AA0** | | 1 | 1 unit | 41J |
| | | | White | **3SU1060-0JA60-0AA0** | | 1 | 1 unit | 41J |
| 3SU1061-0JB40-0AA0 | | | | | | | | |
| **Illuminated pushbuttons** with flat button | Momentary contact | -- | Red | **3SU1061-0JB20-0AA0** | | 1 | 1 unit | 41J |
| | | | Yellow | **3SU1061-0JB30-0AA0** | | 1 | 1 unit | 41J |
| | | | Green | **3SU1061-0JB40-0AA0** | | 1 | 1 unit | 41J |
| | | | Blue | **3SU1061-0JB50-0AA0** | | 1 | 1 unit | 41J |
| | | | Clear | **3SU1061-0JB70-0AA0** | | 1 | 1 unit | 41J |
| 3SU1061-0JA30-0AA0 | | | | | | | | |
| | Latching | Push to unlatch | Red | **3SU1061-0JA20-0AA0** | | 1 | 1 unit | 41J |
| | | | Yellow | **3SU1061-0JA30-0AA0** | | 1 | 1 unit | 41J |
| | | | Green | **3SU1061-0JA40-0AA0** | | 1 | 1 unit | 41J |
| | | | Blue | **3SU1061-0JA50-0AA0** | | 1 | 1 unit | 41J |
| | | | Clear | **3SU1061-0JA70-0AA0** | | 1 | 1 unit | 41J |





*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Version | Operating principle | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Selector switches** | | | | | | | |
| ***2 switch positions, can be illuminated*** | | | | | | | |
| Selector, short black actuator and front ring for flat mounting | Momentary contact, 45° (10:30/12 o'clock), reset from center to left | Black | **3SU1062-2DC10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1062-2DC20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1062-2DC40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1062-2DC60-0AA0** | | 1 | 1 unit | 41J |
| | Latching, 90° (10:30/1:30 o'clock) | Black | **3SU1062-2DF10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1062-2DF20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1062-2DF40-0AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1062-2DF50-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1062-2DF60-0AA0** | | 1 | 1 unit | 41J |
| Selector, long black actuator and front ring for flat mounting | Momentary contact, 45° (10:30/12 o'clock), reset from center to left | Black | **3SU1062-2EC10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1062-2EC20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1062-2EC40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1062-2EC60-0AA0** | | 1 | 1 unit | 41J |
| | Latching, 90° (10:30/1:30 o'clock) | Black | **3SU1062-2EF10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1062-2EF20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1062-2EF40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1062-2EF60-0AA0** | | 1 | 1 unit | 41J |
| ***3 switch positions (I+O+II), can be illuminated*** | | | | | | | |
| Selector, short black actuator and front ring for flat mounting | Momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right | Black | **3SU1062-2DM10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1062-2DM20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1062-2DM40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1062-2DM60-0AA0** | | 1 | 1 unit | 41J |
| | Latching, 2x45° (10:30/12/1:30 o'clock) | Black | **3SU1062-2DL10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1062-2DL20-0AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1062-2DL30-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1062-2DL40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1062-2DL60-0AA0** | | 1 | 1 unit | 41J |
| | Momentary contact to the right, latching to the left, 2x45° (10:30/12/1:30 o'clock) | White | **3SU1062-2DN60-0AA0** | | 1 | 1 unit | 41J |
| Selector, long black actuator and front ring for flat mounting | Momentary contact, 2x45° (10:30/12/1:30 o'clock), reset from left + right | Black | **3SU1062-2EM10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1062-2EM20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1062-2EM40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1062-2EM60-0AA0** | | 1 | 1 unit | 41J |
| | Latching, 2x45° (10:30/12/1:30 o'clock) | Black | **3SU1062-2EL10-0AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1062-2EL20-0AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1062-2EL40-0AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1062-2EL60-0AA0** | | 1 | 1 unit | 41J |

3SU1062-2DC40-0AA0

3SU1062-2EC20-0AA0

3SU1062-2DL60-0AA0

3SU1062-2EL20-0AA0



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Make of lock | Operating principle | Switch position for key removal | Number of keys | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Key-operated switches** | | | | | | | | |
| ***2 switch positions*** | | | | | | | | |
| 3SU1060-4LF11-0AA0 | | | | | | | | |
| RONIS, SB30 and front ring for flat installation | Momentary contact, 45° (10:30/12 o'clock), reset from center to left | O | 2 | **3SU1060-4LC01-0AA0** | | 1 | 1 unit | 41J |
| | Latching, 90° (10:30/1:30 o'clock) | O | 2 | **3SU1060-4LF01-0AA0** | | 1 | 1 unit | 41J |
| | | O+I | 2 | **3SU1060-4LF11-0AA0** | | 1 | 1 unit | 41J |
| | | I | 2 | **3SU1060-4LF21-0AA0** | | 1 | 1 unit | 41J |
| ***3 switch positions*** | | | | | | | | |
| 3SU1060-4LL11-0AA0 | | | | | | | | |
| RONIS, SB30 and front ring for flat installation | Latching, 2x45° (10:30/12/ 1:30 o'clock) | I+O+II | 2 | **3SU1060-4LL11-0AA0** | | 1 | 1 unit | 41J |
| | Momentary contact, 2x45° (10:30/12/ 1:30 o'clock), reset from left + right | O | 2 | **3SU1060-4LM01-0AA0** | | 1 | 1 unit | 41J |

## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Version | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Indicator lights** | | | | | | |
| 3SU1061-0JD40-0AA0 | | | | | | |
| **With flat lens** | Red | **3SU1061-0JD20-0AA0** | | 1 | 1 unit | 41J |
| | Yellow | **3SU1061-0JD30-0AA0** | | 1 | 1 unit | 41J |
| | Green | **3SU1061-0JD40-0AA0** | | 1 | 1 unit | 41J |
| | Blue | **3SU1061-0JD50-0AA0** | | 1 | 1 unit | 41J |
| | Clear | **3SU1061-0JD70-0AA0** | | 1 | 1 unit | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| | Mounting diameter | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | mm | | | | | | | |
| **Sealing plugs**[1] | | | | | | | | |
| 3SU1960-0FA80-0AA0 | 30 | Metal, matte | Sand gray | **3SU1960-0FA80-0AA0** | | 1 | 1 unit | 41J |

[1] The sealing plug is mounted with a holder.
Modules might already be mounted on the holder.

| | Product version | Mounting diameter | Accessory material | Accessory color | **Screw terminals** ⊕ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | | mm | | | | | | | |
| **USB connections** | | | | | | | | | |
| 3SU1960-0GA80-0AA0 | USB 3.0 | 30 | Metal, matte | Sand gray | **3SU1960-0GA80-0AA0** | | 1 | 1 unit | 41J |
| **RJ45 connections** | | | | | | | | | |
| 3SU1960-0GB80-0AA0 | RJ-45 Cat. 5e | 30 | Metal, matte | Sand gray | **3SU1960-0GB80-0AA0** | | 1 | 1 unit | 41J |

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## Options

### *Special locks for key-operated switches*

The plastic and metal key-operated switches of type RONIS, BKS and Siemens (compatible with CES) can be optionally ordered with additional locks.

In this case **"-Z"**, the order code **"Y01"** and the required lock number must be added to the article number of the relevant key-operated switch for standard locking.

| **Order code** | **Y01** |
|---|---|
| Standard delivery time | 25 working days |
| Additional price per unit | |
| Ordering example | 3SU1000-5BF01-0AA0-Z<br>Y01<br>Z = SSG18 |

### *Ordering notes*

- For all special locks, an additional price applies.
- The order code **"Y01"** must be quoted in accordance with the above table. Automated processing of the order with a defined delivery time can be guaranteed only for correctly submitted orders.
- For applications in which access security is important and several lock numbers are used, we recommend the use of BKS or Siemens key-operated switches.
- Special locks for VW (E1, E2, ...) will be delivered without keys, all others with two keys.
- Available special locks
  - Siemens lock (compatible with CES locks):
    SSG1 to SSG100; SMS1 to SMS100;
    LSG1; BAZ1, BAZ6, BAZ8, BAZ11, BAZ20, BAZ27, BAZ30, BAZ34; VL1, VL5; TAB501; STGH10; SSP9
  - BKS lock:
    S1 to S99; E1 to E25 (VW – without key);
    G3751 (VW – without key)
  - RONIS lock: SB30, SB31, 421, 455
  - O.M.R. lock: 73038, 73037, 73034, 73033
  - For key-operated switches with key monitoring and Siemens lock, locks SSG1 to SSG100 are possible.
  - With the Siemens locks VL1 and VL5, key removal is possible in the O, I, II, O+I and O+II positions.

Note:

Mixing of the special locks listed above from different key-operated switch brands is not possible.

Example:
A RONIS key-operated switch cannot be combined with an SSG10 lock.

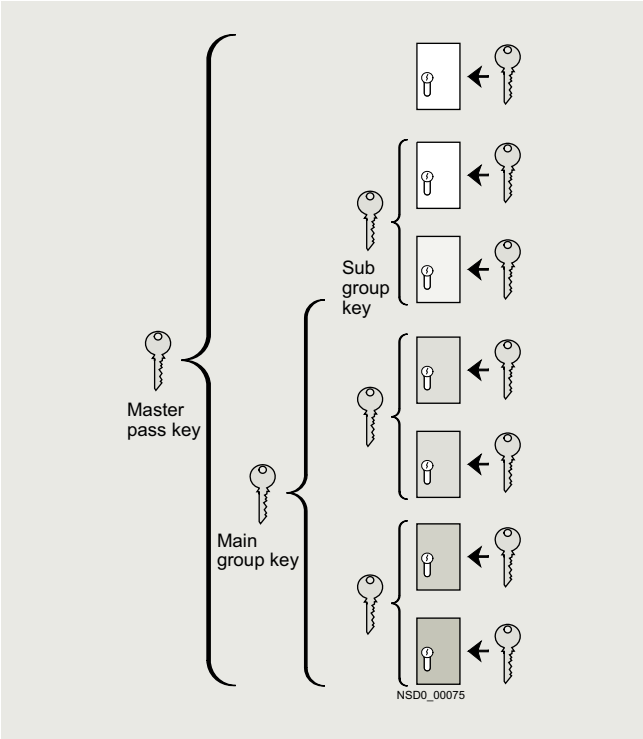
### *Master and master-pass key systems*

The following key systems can be supplied with BKS or Siemens locks:

- Central lock systems
- Master key systems
- Central master key systems
- Master-pass key systems

When placing an order you must supplement the article number of the matching key-operated switches with **"-Z"** and quote the order code **"Y03"**.

Price and delivery time on request.
Email: sirius-attach.aud@siemens.com




Example of master-pass key system

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## Options

### *Inscription of actuating and signaling elements*

Actuators and indicators of plastic as well as metal version can be optionally inscribed with a laser.

Example of laser inscription

The actuators of the pushbuttons, illuminated pushbuttons, twin pushbuttons, mushroom pushbuttons, illuminated mushroom pushbuttons, EMERGENCY STOP mushroom pushbuttons (without lock), the lenses of the indicator lights, and the acoustic signaling devices can all be inscribed.

Version

The default typeface used for inscriptions with text is Arial and the text is centered.

The font height for illuminated actuators is 2.5 mm, for non-illuminated actuators 3 mm.

Up to 8 characters per line are possible.

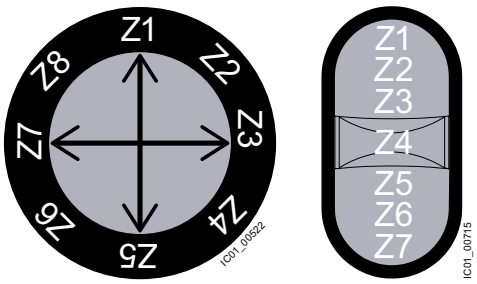
Notes:

Selected pushbuttons and twin pushbuttons can be supplied as standard with inscribed letters or symbols.

Selector switches, key-operated switches and toggle switches can only be inscribed on the front ring in the design lines
- 22 mm, plastic, black and
- Flat, 30 mm, metal matte

(only one text line and the supplement Y19).

Assignment of the positions on the actuator




Front ring and twin pushbutton

### *Ordering notes*

To order, the inscribed actuating and signaling elements can be selected via the SIRIUS ACT configurator. An electronic order form is then generated.

Configurator, see www.siemens.com/sirius-act/configurator.

When ordering, add "**-Z**" and one of the following order codes to the article number of the actuator element or the indicator light:

- **Y10:** Text in upper/lower case, always upper case for beginning of line,
  e.g. Z1=Lift Z2=Lower
- **Y11:** Text in upper case,
  e.g. Z1=LIFT Z2=LOWER
- **Y12:** Text in lower case,
  e.g. Z1=lift off Z2=lower off
- **Y15:** Text in upper/lower case, all words begin with upper case letters,
  e.g. Z1=Lift Off Z2=Lower Off
- **Y13:** Symbol with number according to ISO 7000 or IEC 60417
- **Y19:** Inscription of choice, text or symbol, can only be ordered via SIRIUS ACT configurator with a Configuration Identification Number (CIN)

When ordering, specify the required inscription without umlauts (ä, ö, ü) and without spaces after Z=, Z1=, etc. in addition to the article number and order code (see ordering examples 1 to 3).

In the case of symbols, specify the symbol No. and the standard (see ordering example 2).

In the case of multi-line inscriptions, the text must be assigned to the respective line, e.g. Z1=Lift, Z2=Lower (see ordering examples 1 and 3).

The SIRIUS ACT configurator must be used to select special inscriptions and symbols (see ordering example 4). In this case a CIN (Configuration Identification Number) is generated for placement of future orders. It is then possible to place an order directly via the SIRIUS ACT configurator using the CIN (shopping cart in the Industry Mall) or via the standard ordering channels.

Standard ordering channels:

- Configurator: www.siemens.com/sirius-act/configurator
- Industry Mall: www.siemens.com/industrymall

Ordering example 1

A round pushbutton with 2 lines of text is required:

**3SU1000-0AB20-0AA0-Z**
**Y10**
Z1=Lift
Z2=Lower

Ordering example 2

A pushbutton inscribed with symbol No. 5389 according to IEC 60417 is required:

**3SU1000-0AB20-0AA0-Z**
**Y13**
Z=5389 IEC

Ordering example 3

A selector switch with 2 switch positions and multi-line inscription on the front ring is required:

**3SU1002-2BF10-0AA0-Z**
**Y11**
Z8=0
Z2=I

Ordering example 4

An indicator light with customized inscription is required:

**3SU1001-6AA50-0AA0-Z**
**Y19**
CIN.....
(20-digit number generated from the SIRIUS ACT configurator)

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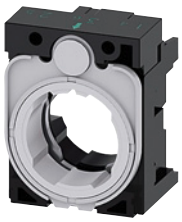
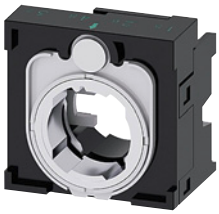
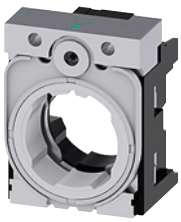
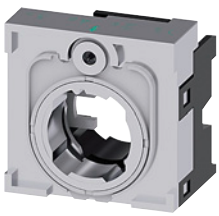
## Holders without module

### Overview

- Plastic holders are mounted on actuators and indicators made of plastic (3SU100).
- Metal holders can be mounted on all versions of actuators and indicators, with the exception of ID key-operated switches.
- Universal holders can be mounted on actuators and indicators made of plastic or metal.
- All metal and universal holders are automatically grounded by their fastening screw. A grounding stud can also be fitted (see page 13/139).

### Selection and ordering data

| Multi-unit packaging, see page 13/17. | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Holders without module for plastic** | | | | | | |
|  3SU1500-0AA10-0AA0 | ***3x without module*** | **3SU1500-0AA10-0AA0** | | 1 | 5 units | 41J |
|  3SU1500-0BA10-0AA0 | ***4x without module***<br>For selector switches with 4 switch positions and for coordinate switches | **3SU1500-0BA10-0AA0** | | 1 | 1 unit | 41J |
| **Holders without module for metal** | | | | | | |
|  3SU1510-0AA10-0AA0 | ***3x without module*** | **3SU1510-0AA10-0AA0** | | 1 | 5 units | 41J |
|  3SU1550-0BA10-0AA0 | ***4x without module***<br>For selector switches with 4 switch positions and for coordinate switches | **3SU1550-0BA10-0AA0** | | 1 | 1 unit | 41J |
| **Holders without module, universal for plastic and metal** | | | | | | |
| 3SU1550-0AA10-0AA0 | ***3x without module*** | **3SU1550-0AA10-0AA0** | | 1 | 5 units | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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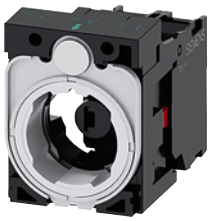
## Overview

- Plastic holders are mounted on actuators and indicators made of plastic (3SU100).
- Metal holders can be mounted on all versions of actuators and indicators, with the exception of ID key-operated switches.
- Universal holders can be mounted on actuators and indicators made of plastic or metal.
- All metal and universal holders are inherently grounded. A grounding stud can also be fitted (see page 13/139).

## Selection and ordering data

| Number of contact modules | Number of LED modules | NO contacts | NC contacts | Color of light source | | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Holders with module for plastic** | | | | | | | | | | |
| ***3x with module*** | | | | | | | | | | |
| 1 | 0 | 1 | 0 | -- | | **3SU1500-1AA10-1BA0** | | 1 | 1 unit | 41J |
| | | 0 | 1 | | ➔ | **3SU1500-1AA10-1CA0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | | ➔ | **3SU1500-1AA10-1FA0** | | 1 | 1 unit | 41J |
| 2 | 0 | 2 | 0 | -- | | **3SU1500-1AA10-1NA0** | | 1 | 1 unit | 41J |
| | | 0 | 2 | | ➔ | **3SU1500-1AA10-1PA0** | | 1 | 1 unit | 41J |
| | | 2 | 2 | | ➔ | **3SU1500-1AA10-1LA0** | | 1 | 1 unit | 41J |
| ***3x with contact and LED module[1] (6 ... 24 V AC/DC)*** | | | | | | | | | | |
| 1 | 1 | 1 | 0 | Amber | | **3SU1501-1AG00-1BA0** | | 1 | 1 unit | 41J |
| | | | | Red | | **3SU1501-1AG20-1BA0** | | 1 | 1 unit | 41J |
| | | | | Yellow | | **3SU1501-1AG30-1BA0** | | 1 | 1 unit | 41J |
| | | | | Green | | **3SU1501-1AG40-1BA0** | | 1 | 1 unit | 41J |
| | | | | Blue | | **3SU1501-1AG50-1BA0** | | 1 | 1 unit | 41J |
| | | | | White | | **3SU1501-1AG60-1BA0** | | 1 | 1 unit | 41J |
| | | 0 | 1 | Amber | ➔ | **3SU1501-1AG00-1CA0** | | 1 | 1 unit | 41J |
| | | | | Red | ➔ | **3SU1501-1AG20-1CA0** | | 1 | 1 unit | 41J |
| | | | | Yellow | ➔ | **3SU1501-1AG30-1CA0** | | 1 | 1 unit | 41J |
| | | | | Green | ➔ | **3SU1501-1AG40-1CA0** | | 1 | 1 unit | 41J |
| | | | | Blue | ➔ | **3SU1501-1AG50-1CA0** | | 1 | 1 unit | 41J |
| | | | | White | ➔ | **3SU1501-1AG60-1CA0** | | 1 | 1 unit | 41J |
| | | 1 | 1 | Amber | ➔ | **3SU1501-1AG00-1FA0** | | 1 | 1 unit | 41J |
| | | | | Red | ➔ | **3SU1501-1AG20-1FA0** | | 1 | 1 unit | 41J |
| | | | | Yellow | ➔ | **3SU1501-1AG30-1FA0** | | 1 | 1 unit | 41J |
| | | | | Green | ➔ | **3SU1501-1AG40-1FA0** | | 1 | 1 unit | 41J |
| | | | | Blue | ➔ | **3SU1501-1AG50-1FA0** | | 1 | 1 unit | 41J |
| | | | | White | ➔ | **3SU1501-1AG60-1FA0** | | 1 | 1 unit | 41J |
| 2 | 1 | 2 | 0 | Amber | | **3SU1501-1AG00-1NA0** | | 1 | 1 unit | 41J |
| | | | | Red | | **3SU1501-1AG20-1NA0** | | 1 | 1 unit | 41J |
| | | | | Yellow | | **3SU1501-1AG30-1NA0** | | 1 | 1 unit | 41J |
| | | | | Green | | **3SU1501-1AG40-1NA0** | | 1 | 1 unit | 41J |
| | | | | Blue | | **3SU1501-1AG50-1NA0** | | 1 | 1 unit | 41J |
| | | | | White | | **3SU1501-1AG60-1NA0** | | 1 | 1 unit | 41J |
| | | 2 | 2 | Amber | ➔ | **3SU1501-1AG00-1LA0** | | 1 | 1 unit | 41J |
| | | | | Red | ➔ | **3SU1501-1AG20-1LA0** | | 1 | 1 unit | 41J |
| | | | | Yellow | ➔ | **3SU1501-1AG30-1LA0** | | 1 | 1 unit | 41J |
| | | | | Green | ➔ | **3SU1501-1AG40-1LA0** | | 1 | 1 unit | 41J |
| | | | | Blue | ➔ | **3SU1501-1AG50-1LA0** | | 1 | 1 unit | 41J |
| | | | | White | ➔ | **3SU1501-1AG60-1LA0** | | 1 | 1 unit | 41J |

3SU1500-1AA10-1BA0



3SU1501-1AG20-1CA0

3SU1501-1AG20-1LA0

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

[1] Only for use with SIRIUS commanding and signaling devices.

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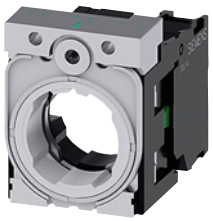
## Holders with module

### Holders with module for metal


3SU1510-1AA10-1BA0

3SU1511-1AB20-3MA0

| Number of contact modules | Number of LED modules | NO contacts | NC contacts | Color of light source | | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| ***3x with module*** | | | | | | | | | | |
| 1 | 0 | 1 | 0 | -- | | 3SU1510-1AA10-1BA0 | | 1 | 1 unit | 41J |
| | | 0 | 1 | -- | ➔ | 3SU1510-1AA10-1CA0 | | 1 | 1 unit | 41J |
| | | 1 | 1 | -- | ➔ | 3SU1510-1AA10-1FA0 | | 1 | 1 unit | 41J |
| 2 | 0 | 2 | 0 | -- | | 3SU1510-1AA10-1NA0 | | 1 | 1 unit | 41J |
| | | 0 | 2 | -- | ➔ | 3SU1510-1AA10-1PA0 | | 1 | 1 unit | 41J |
| | | 2 | 2 | -- | ➔ | 3SU1510-1AA10-1LA0 | | 1 | 1 unit | 41J |
| | | | | | | **Spring-loaded terminals** | | | | |
| 2 | 0 | 2 | 0 | -- | | 3SU1510-1AA10-3NA0 | | 1 | 1 unit | 41J |
| | | 1 | 1 | -- | ➔ | 3SU1510-1AA10-3MA0 | | 1 | 1 unit | 41J |
| ***3x with module and LED module (24 V AC/DC)*** | | | | | | | | | | |
| 0 | 1 | 0 | 0 | Red | | 3SU1511-1AB20-3AA0 | | 1 | 1 unit | 41J |
| 2 | 1 | 1 | 1 | Red | ➔ | 3SU1511-1AB20-3MA0 | | 1 | 1 unit | 41J |
| | | | | Yellow | ➔ | 3SU1511-1AB30-3MA0 | | 1 | 1 unit | 41J |
| | | | | Green | ➔ | 3SU1511-1AB40-3MA0 | | 1 | 1 unit | 41J |
| | | | | Blue | ➔ | 3SU1511-1AB50-3MA0 | | 1 | 1 unit | 41J |
| | | | | White | ➔ | 3SU1511-1AB60-3MA0 | | 1 | 1 unit | 41J |
| | | 2 | 0 | White | | 3SU1511-1AB60-3NA0 | | 1 | 1 unit | 41J |
| | | 0 | 2 | White | ➔ | 3SU1511-1AB60-3PA0 | | 1 | 1 unit | 41J |

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

### Holders with module, universal for plastic and metal

3SU1550-1AA10-1BA0

3SU1551-1AB20-3MA0

| Number of contact modules | Number of LED modules | NO contacts | NC contacts | Color of light source | | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| ***3x with module*** | | | | | | | | | | |
| 1 | 0 | 1 | 0 | -- | | 3SU1550-1AA10-1BA0 | | 1 | 1 unit | 41J |
| | | 0 | 1 | -- | ➔ | 3SU1550-1AA10-1CA0 | | 1 | 1 unit | 41J |
| | | 1 | 1 | -- | ➔ | 3SU1550-1AA10-1FA0 | | 1 | 1 unit | 41J |
| 2 | 0 | 2 | 0 | -- | | 3SU1550-1AA10-1NA0 | | 1 | 1 unit | 41J |
| | | 0 | 2 | -- | ➔ | 3SU1550-1AA10-1PA0 | | 1 | 1 unit | 41J |
| | | 2 | 2 | -- | ➔ | 3SU1550-1AA10-1LA0 | | 1 | 1 unit | 41J |
| | | | | | | **Spring-loaded terminals** | | | | |
| 2 | 0 | 2 | 0 | -- | | 3SU1550-1AA10-3NA0 | | 1 | 1 unit | 41J |
| | | 1 | 1 | -- | ➔ | 3SU1550-1AA10-3MA0 | | 1 | 1 unit | 41J |
| ***3x with module and LED module (24 V AC/DC)*** | | | | | | | | | | |
| 0 | 1 | 0 | 0 | Red | | 3SU1551-1AB20-3AA0 | | 1 | 1 unit | 41J |
| 2 | 1 | 1 | 1 | Red | ➔ | 3SU1551-1AB20-3MA0 | | 1 | 1 unit | 41J |
| | | | | Yellow | ➔ | 3SU1551-1AB30-3MA0 | | 1 | 1 unit | 41J |
| | | | | Green | ➔ | 3SU1551-1AB40-3MA0 | | 1 | 1 unit | 41J |
| | | | | Blue | ➔ | 3SU1551-1AB50-3MA0 | | 1 | 1 unit | 41J |
| | | | | White | ➔ | 3SU1551-1AB60-3MA0 | | 1 | 1 unit | 41J |
| | | 2 | 0 | White | | 3SU1551-1AB60-3NA0 | | 1 | 1 unit | 41J |
| | | 0 | 2 | White | ➔ | 3SU1551-1AB60-3PA0 | | 1 | 1 unit | 41J |

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

The contact modules are fitted with slow-action contacts (NO contacts or NC contacts). These ensure a high switching reliability even with small voltages and currents, such as 5 V/1 mA. They are suitable for use in electronic as well as conventional controls. The contact pieces of the NC contacts are positively driven.

Mounting system

- Front plate mounting:
  The contact modules are mounted on the rear face of a holder.
- Base mounting:
  The contact modules are used in the 3SU18 enclosures and are snapped into the lower part of the enclosure.

Connection methods

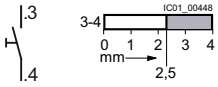
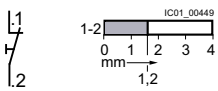
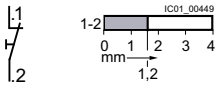
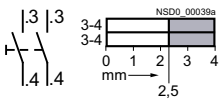
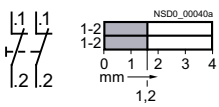
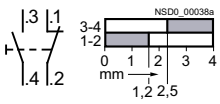
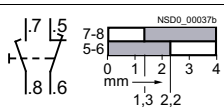
The contact modules are available with:

- Screw terminals
- Spring-loaded terminals
- Socket connection (THT) for PCB mounting

The terminal designations of the contact modules comply with EN 50013.

## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Contact version | Number of NO contacts | Number of NC contacts | | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Contact modules for front plate mounting** | | | | | | | | |
| Silver alloy | 1 | 0 |  | **3SU1400-1AA10-1BA0** | | 1 | 5 units | 41J |
| | 0 | 1 |  | **3SU1400-1AA10-1CA0** | | 1 | 5 units | 41J |
| | 0 | 1 with installation supervision[1] |  | **3SU1400-1AA10-1HA0** | | 1 | 1 unit | 41J |
| | 2 | 0 |  | **3SU1400-1AA10-1DA0** | | 1 | 1 unit | 41J |
| | 0 | 2 |  | **3SU1400-1AA10-1EA0** | | 1 | 1 unit | 41J |
| | 1 | 1 |  | **3SU1400-1AA10-1FA0** | | 1 | 1 unit | 41J |
| | 1 leading switching | 1 lagging switching |  | **3SU1400-1AA10-1GA0** | | 1 | 1 unit | 41J |

3SU1400-1AA10-1BA0

3SU1400-1AA10-1HA0

3SU1400-1AA10-1FA0

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

[1] The contact module has 1 NO internal contact + 1 NC internal contact. The NO contact is connected in series with the NC contact and brought out at terminal 1-2. When the module is snapped onto the holder, the NO contact closes. It opens when the module is detached from the holder again (the NC contact remains closed). The NC contact opens when the EMERGENCY STOP device is actuated (the NO contact remains closed). The contact is closed only when both the NC and NO contacts are closed.
Only suitable for installation in 3SU18 enclosure with one command point and in connection with the adapter 3SU1900-0JF10-0AA0.

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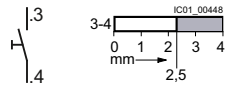
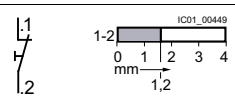
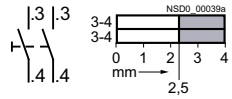
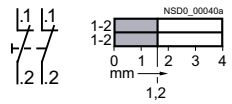
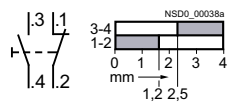
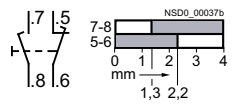
## Contact modules

**Multi-unit packaging, see page 13/17.**

| Contact version | Number of NO contacts | Number of NC contacts | | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Contact modules for front plate mounting** | | | | | | | | |
| Gold-plated | 1 | 0 |  | **3SU1400-1AA10-1LA0** | | 1 | 1 unit | 41J |
| | 0 | 1 ➔ |  | **3SU1400-1AA10-1MA0** | | 1 | 1 unit | 41J |
| | 2 | 0 |  | **3SU1400-1AA10-1NA0** | | 1 | 1 unit | 41J |
| | 0 | 2 ➔ |  | **3SU1400-1AA10-1PA0** | | 1 | 1 unit | 41J |
| | 1 | 1 ➔ |  | **3SU1400-1AA10-1QA0** | | 1 | 1 unit | 41J |
| | 1 leading | 1 lagging ➔ |  | **3SU1400-1AA10-1RA0** | | 1 | 1 unit | 41J |

3SU1400-1AA10-1LA0

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:



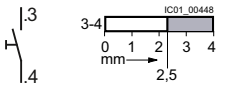
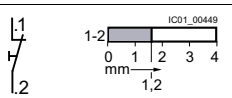
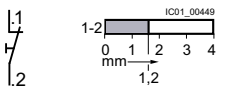
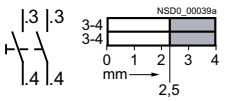
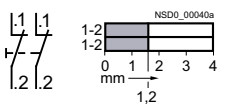
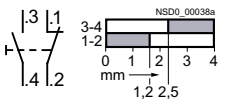
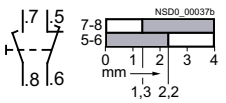
* You can order this quantity or a multiple thereof.
Illustrations are approximate

© Siemens 2023



**Multi-unit packaging, see page 13/17.**

## Contact modules for front plate mounting

| Contact version | Number of NO contacts | Number of NC contacts | | | Spring-loaded terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| Silver alloy | 1 | 0 |  | | **3SU1400-1AA10-3BA0** | | 1 | 5 units | 41J |
| | 0 | 1 | ➔  | | **3SU1400-1AA10-3CA0** | | 1 | 5 units | 41J |
| | 0 | 1 with installation supervision[1] | ➔  | | **3SU1400-1AA10-3HA0** | | 1 | 1 unit | 41J |
| | 2 | 0 |  | | **3SU1400-1AA10-3DA0** | | 1 | 1 unit | 41J |
| | 0 | 2 | ➔  | | **3SU1400-1AA10-3EA0** | | 1 | 1 unit | 41J |
| | 1 | 1 | ➔  | | **3SU1400-1AA10-3FA0** | | 1 | 1 unit | 41J |
| | 1 leading | 1 lagging | ➔  | | **3SU1400-1AA10-3GA0** | | 1 | 1 unit | 41J |

3SU1400-1AA10-3BA0

3SU1400-1AA10-3HA0

3SU1400-1AA10-3DA0

3SU1400-1AA10-3FA0

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

[1] The contact module has 1 NO internal contact + 1 NC internal contact. The NO contact is connected in series with the NC contact and brought out at terminal 1-2. When the module is snapped onto the holder, the NO contact closes. It opens when the module is detached from the holder again (the NC contact remains closed). The NC contact opens when the EMERGENCY STOP device is actuated (the NO contact remains closed). The contact is closed only when both the NC and NO contacts are closed.
Only suitable for installation in 3SU18 enclosure with one command point and in connection with the adapter 3SU1900-0JF10-0AA0.

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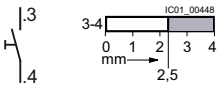
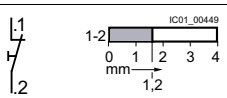
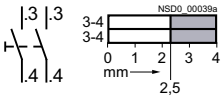
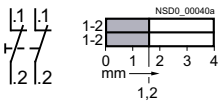
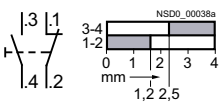
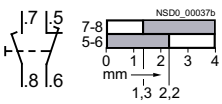
## Contact modules

**Multi-unit packaging, see page 13/17.**

| Contact version | Number of NO contacts | Number of NC contacts | | | Spring-loaded terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Contact modules for front plate mounting** | | | | | | | | | |
| <br>3SU1400-1AA10-3LA0 | | | | | | | | | |
| Gold-plated | 1 | 0 | |  | **3SU1400-1AA10-3LA0** | | 1 | 1 unit | 41J |
| | 0 | 1 | ➔ |  | **3SU1400-1AA10-3MA0** | | 1 | 1 unit | 41J |
| | 2 | 0 | |  | **3SU1400-1AA10-3NA0** | | 1 | 1 unit | 41J |
| | 0 | 2 | ➔ |  | **3SU1400-1AA10-3PA0** | | 1 | 1 unit | 41J |
| | 1 | 1 | ➔ |  | **3SU1400-1AA10-3QA0** | | 1 | 1 unit | 41J |
| | 1 leading | 1 lagging | ➔ |  | **3SU1400-1AA10-3RA0** | | 1 | 1 unit | 41J |

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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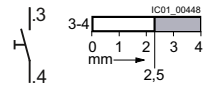
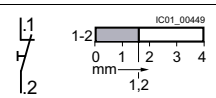
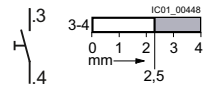
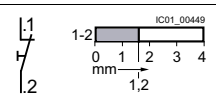
**Multi-unit packaging, see page 13/17.**

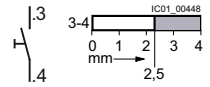
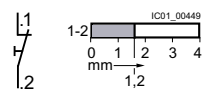
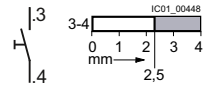
## Contact modules for base mounting

| Contact version | Number of NO contacts | Number of NC contacts | | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| Silver alloy | 1 | 0 |  | **3SU1400-2AA10-1BA0** | | 1 | 5 units | 41J |
| | 0 | 1 ➔ |  | **3SU1400-2AA10-1CA0** | | 1 | 5 units | 41J |
| Gold-plated | 1 | 0 |  | **3SU1400-2AA10-1LA0** | | 1 | 1 unit | 41J |
| | 0 | 1 ➔ |  | **3SU1400-2AA10-1MA0** | | 1 | 1 unit | 41J |

3SU1400-2AA10-1BA0

3SU1400-2AA10-1LA0

**Spring-loaded terminals**

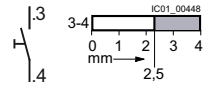
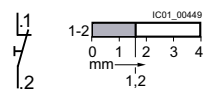
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Silver alloy | 1 | 0 |  | **3SU1400-2AA10-3BA0** | | 1 | 5 units | 41J |
| | 0 | 1 ➔ |  | **3SU1400-2AA10-3CA0** | | 1 | 5 units | 41J |
| Gold-plated | 1 | 0 |  | **3SU1400-2AA10-3LA0** | | 1 | 1 unit | 41J |

3SU1400-2AA10-3BA0

3SU1400-2AA10-3LA0

**Multi-unit packaging, see page 13/17.**

## Contact modules for mounting on printed circuit boards

| Contact version | Number of NO contacts | Number of NC contacts | | Socket terminals (THT) Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| Silver alloy | 1 | 0 |  | **3SU1400-3AA10-5BA0** | | 1 | 1 unit | 41J |
| | 0 | 1 ➔ |  | **3SU1400-3AA10-5CA0** | | 1 | 1 unit | 41J |

3SU1400-3AA10-5BA0

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## LED modules

### Overview

#### LED modules

The commanding and signaling devices can be illuminated via LED modules with integrated LEDs.

Mounting system

- Front plate mounting:
  The LED modules are mounted on the rear face of a holder in the center position.
- Base mounting:
  The LED modules are used in the 3SU18 enclosures and are snapped into the lower part of the enclosure.

Connection methods

The LED modules are available with:

- Screw terminals
- Spring-loaded terminals
- Socket connection (THT) for PCB mounting

The terminal designations of the LED modules comply with EN 50013.

#### *LED test modules*

The LED test modules are used to test the LED modules (AC/DC versions). One LED module is connected to each test module for testing, see page 13/87.

### Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Operational voltage at AC | Operational voltage at DC | Color | Screw terminals ⏚ Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| V | V | | | | | | |
| **LED modules[1] for front plate mounting** | | | | | | | |
| 24 | 24 | Amber | **3SU1401-1BB00-1AA0** | | 1 | 5 units | 41J |
| | | Red | **3SU1401-1BB20-1AA0** | | 1 | 5 units | 41J |
| | | Yellow | **3SU1401-1BB30-1AA0** | | 1 | 5 units | 41J |
| | | Green | **3SU1401-1BB40-1AA0** | | 1 | 5 units | 41J |
| | | Blue | **3SU1401-1BB50-1AA0** | | 1 | 5 units | 41J |
| | | White | **3SU1401-1BB60-1AA0** | | 1 | 5 units | 41J |
| | | Red/yellow/green[2] | **3SU1401-1BB24-1AA0** | | 1 | 1 unit | 41J |
| 110 | -- | Amber | **3SU1401-1BC00-1AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BC20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BC30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BC40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BC50-1AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BC60-1AA0** | | 1 | 1 unit | 41J |
| | | Red/yellow/green[2] | **3SU1401-1BC24-1AA0** | | 1 | 1 unit | 41J |
| 230 | -- | Amber | **3SU1401-1BF00-1AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BF20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BF30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BF40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BF50-1AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BF60-1AA0** | | 1 | 1 unit | 41J |
| | | Red/yellow/green[2] | **3SU1401-1BF24-1AA0** | | 1 | 1 unit | 41J |
| 6 ... 24 | 6 ... 24 | Amber | **3SU1401-1BG00-1AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BG20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BG30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BG40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BG50-1AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BG60-1AA0** | | 1 | 1 unit | 41J |
| | | Red/yellow/green[2] | **3SU1401-1BG24-1AA0** | | 1 | 1 unit | 41J |
| 24 ... 240 | 24 ... 240 | Amber | **3SU1401-1BH00-1AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BH20-1AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BH30-1AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BH40-1AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BH50-1AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BH60-1AA0** | | 1 | 1 unit | 41J |

3SU1401-1BB30-1AA0

1) Only for use with SIRIUS commanding and signaling devices.
2) Only suitable for installation in 3SU18 enclosure with one command point and in connection with the adapter 3SU1900-0JF10-0AA0.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

## LED modules[1] for front plate mounting

| Operational voltage at AC | Operational voltage at DC | Color | Spring-loaded terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| V | V | | | | | | |
| 24 | 24 | Amber | **3SU1401-1BB00-3AA0** | | 1 | 5 units | 41J |
| | | Red | **3SU1401-1BB20-3AA0** | | 1 | 5 units | 41J |
| | | Yellow | **3SU1401-1BB30-3AA0** | | 1 | 5 units | 41J |
| | | Green | **3SU1401-1BB40-3AA0** | | 1 | 5 units | 41J |
| | | Blue | **3SU1401-1BB50-3AA0** | | 1 | 5 units | 41J |
| | | White | **3SU1401-1BB60-3AA0** | | 1 | 5 units | 41J |
| | | Red/yellow/green | **3SU1401-1BB24-3AA0** | | 1 | 1 unit | 41J |
| 110 | -- | Amber | **3SU1401-1BC00-3AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BC20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BC30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BC40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BC50-3AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BC60-3AA0** | | 1 | 1 unit | 41J |
| | | Red/yellow/green | **3SU1401-1BC24-3AA0** | | 1 | 1 unit | 41J |
| 230 | -- | Amber | **3SU1401-1BF00-3AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BF20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BF30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BF40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BF50-3AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BF60-3AA0** | | 1 | 1 unit | 41J |
| | | Red/yellow/green | **3SU1401-1BF24-3AA0** | | 1 | 1 unit | 41J |
| 6 ... 24 | 6 ... 24 | Amber | **3SU1401-1BG00-3AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BG20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BG30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BG40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BG50-3AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BG60-3AA0** | | 1 | 1 unit | 41J |
| | | Red/yellow/green | **3SU1401-1BG24-3AA0** | | 1 | 1 unit | 41J |
| 24 ... 240 | 24 ... 240 | Amber | **3SU1401-1BH00-3AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BH20-3AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BH30-3AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BH40-3AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BH50-3AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BH60-3AA0** | | 1 | 1 unit | 41J |

3SU1401-1BB30-3AA0

[1] Only for use with SIRIUS commanding and signaling devices.

**Multi-unit packaging, see page 13/17.**

## LED modules for front plate mounting: ATEX Zone 1-2: Intrinsic safety

| Operational voltage at AC | Operational voltage at DC | Color | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| V | V | | | | | | |
| 24 | 24 | Amber | **3SU1401-1BB00-1AA2** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BB20-1AA2** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BB30-1AA2** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BB40-1AA2** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BB50-1AA2** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BB60-1AA2** | | 1 | 1 unit | 41J |

3SU1401-1BB00-1AA2

| | | | Spring-loaded terminals Article No. | Price per PU | | | |
|---|---|---|---|---|---|---|---|
| 24 | 24 | Amber | **3SU1401-1BB00-3AA2** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-1BB20-3AA2** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-1BB30-3AA2** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-1BB40-3AA2** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-1BB50-3AA2** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-1BB60-3AA2** | | 1 | 1 unit | 41J |

3SU1401-1BB20-3AA2

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## LED modules

**Multi-unit packaging, see page 13/17.**

### LED modules[1] for base mounting

3SU1401-2BB60-1AA0

| Operational voltage at AC | Operational voltage at DC | Color | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| V | V | | | | | | |
| 24 | 24 | Amber | 3SU1401-2BB00-1AA0 | | 1 | 5 units | 41J |
| | | Red | 3SU1401-2BB20-1AA0 | | 1 | 5 units | 41J |
| | | Yellow | 3SU1401-2BB30-1AA0 | | 1 | 5 units | 41J |
| | | Green | 3SU1401-2BB40-1AA0 | | 1 | 5 units | 41J |
| | | Blue | 3SU1401-2BB50-1AA0 | | 1 | 5 units | 41J |
| | | White | 3SU1401-2BB60-1AA0 | | 1 | 5 units | 41J |
| 110 | -- | Amber | 3SU1401-2BC00-1AA0 | | 1 | 1 unit | 41J |
| | | Red | 3SU1401-2BC20-1AA0 | | 1 | 1 unit | 41J |
| | | Yellow | 3SU1401-2BC30-1AA0 | | 1 | 1 unit | 41J |
| | | Green | 3SU1401-2BC40-1AA0 | | 1 | 1 unit | 41J |
| | | Blue | 3SU1401-2BC50-1AA0 | | 1 | 1 unit | 41J |
| | | White | 3SU1401-2BC60-1AA0 | | 1 | 1 unit | 41J |
| 230 | -- | Amber | 3SU1401-2BF00-1AA0 | | 1 | 1 unit | 41J |
| | | Red | 3SU1401-2BF20-1AA0 | | 1 | 1 unit | 41J |
| | | Yellow | 3SU1401-2BF30-1AA0 | | 1 | 1 unit | 41J |
| | | Green | 3SU1401-2BF40-1AA0 | | 1 | 1 unit | 41J |
| | | Blue | 3SU1401-2BF50-1AA0 | | 1 | 1 unit | 41J |
| | | White | 3SU1401-2BF60-1AA0 | | 1 | 1 unit | 41J |
| 6 ... 24 | 6 ... 24 | Amber | 3SU1401-2BG00-1AA0 | | 1 | 1 unit | 41J |
| | | Red | 3SU1401-2BG20-1AA0 | | 1 | 1 unit | 41J |
| | | Yellow | 3SU1401-2BG30-1AA0 | | 1 | 1 unit | 41J |
| | | Green | 3SU1401-2BG40-1AA0 | | 1 | 1 unit | 41J |
| | | Blue | 3SU1401-2BG50-1AA0 | | 1 | 1 unit | 41J |
| | | White | 3SU1401-2BG60-1AA0 | | 1 | 1 unit | 41J |
| 24 ... 240 | 24 ... 240 | Amber | 3SU1401-2BH00-1AA0 | | 1 | 1 unit | 41J |
| | | Red | 3SU1401-2BH20-1AA0 | | 1 | 1 unit | 41J |
| | | Yellow | 3SU1401-2BH30-1AA0 | | 1 | 1 unit | 41J |
| | | Green | 3SU1401-2BH40-1AA0 | | 1 | 1 unit | 41J |
| | | Blue | 3SU1401-2BH50-1AA0 | | 1 | 1 unit | 41J |
| | | White | 3SU1401-2BH60-1AA0 | | 1 | 1 unit | 41J |

3SU1401-2BB20-3AA0

| Operational voltage at AC | Operational voltage at DC | Color | Spring-loaded terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| 24 | 24 | Amber | 3SU1401-2BB00-3AA0 | | 1 | 5 units | 41J |
| | | Red | 3SU1401-2BB20-3AA0 | | 1 | 5 units | 41J |
| | | Yellow | 3SU1401-2BB30-3AA0 | | 1 | 5 units | 41J |
| | | Green | 3SU1401-2BB40-3AA0 | | 1 | 5 units | 41J |
| | | Blue | 3SU1401-2BB50-3AA0 | | 1 | 5 units | 41J |
| | | White | 3SU1401-2BB60-3AA0 | | 1 | 5 units | 41J |
| 110 | -- | Amber | 3SU1401-2BC00-3AA0 | | 1 | 1 unit | 41J |
| | | Red | 3SU1401-2BC20-3AA0 | | 1 | 1 unit | 41J |
| | | Yellow | 3SU1401-2BC30-3AA0 | | 1 | 1 unit | 41J |
| | | Green | 3SU1401-2BC40-3AA0 | | 1 | 1 unit | 41J |
| | | Blue | 3SU1401-2BC50-3AA0 | | 1 | 1 unit | 41J |
| | | White | 3SU1401-2BC60-3AA0 | | 1 | 1 unit | 41J |
| 230 | -- | Amber | 3SU1401-2BF00-3AA0 | | 1 | 1 unit | 41J |
| | | Red | 3SU1401-2BF20-3AA0 | | 1 | 1 unit | 41J |
| | | Yellow | 3SU1401-2BF30-3AA0 | | 1 | 1 unit | 41J |
| | | Green | 3SU1401-2BF40-3AA0 | | 1 | 1 unit | 41J |
| | | Blue | 3SU1401-2BF50-3AA0 | | 1 | 1 unit | 41J |
| | | White | 3SU1401-2BF60-3AA0 | | 1 | 1 unit | 41J |
| 6 ... 24 | 6 ... 24 | Amber | 3SU1401-2BG00-3AA0 | | 1 | 1 unit | 41J |
| | | Red | 3SU1401-2BG20-3AA0 | | 1 | 1 unit | 41J |
| | | Yellow | 3SU1401-2BG30-3AA0 | | 1 | 1 unit | 41J |
| | | Green | 3SU1401-2BG40-3AA0 | | 1 | 1 unit | 41J |
| | | Blue | 3SU1401-2BG50-3AA0 | | 1 | 1 unit | 41J |
| | | White | 3SU1401-2BG60-3AA0 | | 1 | 1 unit | 41J |
| 24 ... 240 | 24 ... 240 | Amber | 3SU1401-2BH00-3AA0 | | 1 | 1 unit | 41J |
| | | Red | 3SU1401-2BH20-3AA0 | | 1 | 1 unit | 41J |
| | | Yellow | 3SU1401-2BH30-3AA0 | | 1 | 1 unit | 41J |
| | | Green | 3SU1401-2BH40-3AA0 | | 1 | 1 unit | 41J |
| | | Blue | 3SU1401-2BH50-3AA0 | | 1 | 1 unit | 41J |
| | | White | 3SU1401-2BH60-3AA0 | | 1 | 1 unit | 41J |

[1] Only for use with SIRIUS commanding and signaling devices.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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Multi-unit packaging, see page 13/17.

| Operational voltage at AC | Operational voltage at DC | Color | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| V | V | | | | | | |
| **LED modules for base mounting: ATEX Zone 1-2: Intrinsic safety** | | | | | | | |
| 24 | 24 | Amber | **3SU1401-2BB00-1AA2** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-2BB20-1AA2** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-2BB30-1AA2** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-2BB40-1AA2** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-2BB50-1AA2** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-2BB60-1AA2** | | 1 | 1 unit | 41J |

3SU1401-2BB00-1AA2

| | | | Spring-loaded terminals | | | | |
|---|---|---|---|---|---|---|---|
| 24 | 24 | Amber | **3SU1401-2BB00-3AA2** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-2BB20-3AA2** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-2BB30-3AA2** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-2BB40-3AA2** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-2BB50-3AA2** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-2BB60-3AA2** | | 1 | 1 unit | 41J |

3SU1401-2BB00-3AA2

Multi-unit packaging, see page 13/17.

| Operational voltage at AC | Operational voltage at DC | Color | Socket terminals (THT)<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| V | V | | | | | | |
| **LED modules[1] for PCB mounting** | | | | | | | |
| -- | 5 | Amber | **3SU1401-3BA00-5AA0** | | 1 | 1 unit | 41J |
| | | Red | **3SU1401-3BA20-5AA0** | | 1 | 1 unit | 41J |
| | | Yellow | **3SU1401-3BA30-5AA0** | | 1 | 1 unit | 41J |
| | | Green | **3SU1401-3BA40-5AA0** | | 1 | 1 unit | 41J |
| | | Blue | **3SU1401-3BA50-5AA0** | | 1 | 1 unit | 41J |
| | | White | **3SU1401-3BA60-5AA0** | | 1 | 1 unit | 41J |

3SU1401-3BA20-5AA0

[1] Only for use with SIRIUS commanding and signaling devices.

Multi-unit packaging, see page 13/17.

| Operational voltage at AC | Operational voltage at DC | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| V | V | | | | | |
| **LED test modules[1] for front plate mounting** | | | | | | |
| 6 … 240 | 6 … 240 | **3SU1400-1CK10-1AA0** | | 1 | 1 unit | 41J |

3SU1400-1CK10-1AA0

| | | | | | | |
|---|---|---|---|---|---|---|
| **LED test modules[1] for base mounting** | | | | | | |
| 6 … 240 | 6 … 240 | **3SU1400-2CK10-1AA0** | | 1 | 1 unit | 41J |

3SU1400-2CK10-1AA0

[1] Only to be used for SIRIUS ACT LED modules (6 to 24 V AC/DC, 24 V AC/DC, 24 to 240 V AC/DC).

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## AS-Interface modules

### Overview

Pushbuttons and indicator lights of the SIRIUS ACT series can be connected to the AS-Interface communications system quickly, easily and reliably with the help of various solutions.

Using special modules, EMERGENCY STOP command devices according to ISO 13850 can be directly connected through the standard AS-Interface with safety-related communication.

The following solutions are available:

- AS-Interface modules
- AS-Interface modules in safety-related version for EMERGENCY STOP mushroom pushbuttons according to ISO 13850

### Selection and ordering data

| | Operational voltage | Slave type | Number of digital inputs | | Number of digital outputs | Screw terminals + Spring-loaded terminals | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | | | Standard | Safety-related | | Article No. / Price per PU | | | |
| | V | | | | | | | | |
| **AS-Interface modules for front plate mounting** | | | | | | | | | |
| 3SU1400-1EC10-2AA0 | 30 | 2 F-DI | -- | 2 | -- | **3SU1400-1EA10-2AA0** | 1 | 1 unit | 41J |
| | | 2 F-DI + 1 LED | -- | 2 | 1 | **3SU1401-1EE20-2AA0** | 1 | 1 unit | 41J |
| | | 2 F-DI + 1 DQ | -- | 2 | 1 | **3SU1400-1EC10-2AA0** | 1 | 1 unit | 41J |
| | | | | | | **Insulation piercing method** | | | |
| 3SU1400-1EA10-4AA0 | 30 | 2 F-DI | -- | 2 | -- | **3SU1400-1EA10-4AA0** | 1 | 1 unit | 41J |
| | | 2 F-DI + 1 LED | -- | 2 | 1 | **3SU1401-1EE20-4AA0** | 1 | 1 unit | 41J |
| | | | | | | **Spring-loaded terminals + Insulation piercing method** | | | |
| 3SU1400-1EC10-4AA0 | 30 | 2 F-DI + 1 DQ | -- | 2 | 1 | **3SU1400-1EC10-4AA0** | 1 | 1 unit | 41J |
| | | 2 F-DI + 1 LED | -- | 2 | 1 | **3SU1401-1EE60-4AA0** | 1 | 1 unit | 41J |
| | | | | | | **Spring-loaded terminals (push-in)** | | | |
| 3SU1400-1EJ10-6AA0 | 30 | 4 DI/3 DO AB | 4 | -- | 3 | **3SU1400-1EJ10-6AA0** | 1 | 1 unit | 41J |
| | | 4 DI/4 DO | 4 | -- | 4 | **3SU1400-1EK10-6AA0** | 1 | 1 unit | 41J |
| **AS-Interface modules for base mounting** | | | | | | | | | |
| 3SU1400-2EJ10-6AA0 | 30 | 4 DI/3 DQ AB | 4 | 0 | 3 | **3SU1400-2EJ10-6AA0** | 1 | 1 unit | 41J |
| | | 4 DI/4 DQ | 4 | 0 | 4 | **3SU1400-2EK10-6AA0** | 1 | 1 unit | 41J |
| | | 2 F-DI | 0 | 2 | 0 | **3SU1400-2EA10-6AA0** | 1 | 1 unit | 41J |
| | | 2 F-DI + 1 LED, red | 0 | 2 | 1 for controlling the LEDs | **3SU1401-2EE20-6AA0** | 1 | 1 unit | 41J |
| | | 2 F-DI + 1 LED, white | 0 | 2 | 1 for controlling the LEDs | **3SU1401-2EE60-6AA0** | 1 | 1 unit | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

The SIRIUS ACT pushbuttons and indicator lights can be connected to IO-Link quickly and safely. The connection is made via the solid-state module for IO-Link.

## Selection and ordering data

| | Operational voltage | Slave type | Number of digital inputs | Number of digital outputs | Spring-loaded terminals (push-in) | | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | V | | | | Article No. | Price per PU | | | |
| **Solid-state modules for IO-Link, for front plate mounting** | | | | | | | | | |
| 3SU1400-1HL10-6AA0 | 24 | Freely programmable (default 6 DI/2 DQ) | 0 … 8 | 0 … 8 | **3SU1400-1HL10-6AA0** | | 1 | 1 unit | 41J |
| **Solid-state modules for IO-Link, for base mounting** | | | | | | | | | |
| 3SU1400-2HL10-6AA0 | 24 | Freely programmable (default 6 DI/2 DQ) | 0 … 8 | 0 … 8 | **3SU1400-2HL10-6AA0** | | 1 | 1 unit | 41J |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Solid-state modules for ID key-operated switches

### Overview

The SIRIUS ACT ID key-operated switches can be used to set up authorization management systems for your machine/plant to identify persons.

The ID key-operated switch is fixed with the holder on the front panel and the solid-state module is mounted on the back. The ID keys can be ordered as accessories. Complete range, see page 13/12.

The solid-state modules for ID key-operated switches can be ordered with and without IO-Link. The version with IO-Link can be easily programmed using function blocks.

### Benefits

Advantages:

- Easy installation on the standard holder without special tools
- The status of operating modes can be queried via physical outputs or via the process image.

### Selection and ordering data

| | Type of power supply via IO-Link master | Protocol is supported, IO-Link protocol | Number of NO contacts | IO-Link transfer rate | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Solid-state modules for ID key-operated switches**[1] | | | | | | | | | |
| 3SU1400-1GC10-1AA0 | -- | No | 5 | -- | **3SU1400-1GC10-1AA0** | | 1 | 1 unit | 41J |
| 3SU1400-1GD10-1AA0 | Yes | Yes | 5 | COM2 (38.4 kBaud) | **3SU1400-1GD10-1AA0** | | 1 | 1 unit | 41J |

[1] Only use in conjunction with plastic holder 3SU1500-0AA10-0AA0.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

### *Interface modules*

Interface modules are used to establish communication between the controller and the SIRIUS ACT system. They feature an RJ45 socket, to which the PROFINET cable can be connected.

Thanks to the integrated PROFIsafe communication with fail-safe interface modules, an EMERGENCY STOP mushroom pushbutton, for example, can be integrated in a fail-safe manner, thus achieving a safety category up to SIL 3/PL e.

If a defect develops on the interface module, it can be replaced without using a programming device thanks to the exchangeable memory module (supplied as standard with fail-safe interface module).

### *Terminal modules*

With terminal modules, SIRIUS ACT commanding and signaling devices are simply connected to the interface module or other terminal modules using a 7-core flat ribbon cable, without the need for special tools. The terminal modules are mounted on the 3-fold holder of the SIRIUS ACT device series.

By combining terminal and interface modules, a SIRIUS ACT system with up to 21 devices can be set up.

For a complete overview of SIRIUS ACT with PROFINET, see page 13/11.

## Selection and ordering data

| Supply voltage at DC | Number of interfaces according to PROFINET/ Safety Integrity Level (SIL) according to IEC 62061 | Number of digital inputs Standard | Number of digital inputs Safety-related | Number of digital outputs | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| V | | | | | | | | | |
| **Interface modules for PROFINET** | | | | | | | | | |
| | ***Interface modules*** | | | | | | | | |
| | | | | | **Screw terminals** | | | | |
| 24 | 1/-- | 0 | 0 | 0 | **3SU1400-1LK10-1AA1** | | 1 | 1 unit | 41J |
| 24 | 1/-- | 4 | 0 | 1 | **3SU1400-1LK10-1BA1** | | 1 | 1 unit | 41J |
| | | | | | **Spring-loaded terminals** | | | | |
| 24 | 1/-- | 0 | 0 | 0 | **3SU1400-1LK10-3AA1** | | 1 | 1 unit | 41J |
| 24 | 1/-- | 4 | 0 | 1 | **3SU1400-1LK10-3BA1** | | 1 | 1 unit | 41J |
| | ***Fail-safe interface modules*** | | | | | | | | |
| | | | | | **Screw terminals** | | | | |
| 24 | 1/SIL 3 | 4 | 0 | 1 | **3SU1400-1LL10-1BA1** | | 1 | 1 unit | 41J |
| | | | | | **Spring-loaded terminals** | | | | |
| 24 | 1/SIL 3 | 4 | 0 | 1 | **3SU1400-1LL10-3BA1** | | 1 | 1 unit | 41J |

3SU1400-1LK10-1AA1

3SU1400-1LL10-3BA1

| Product version | Color of light source | Insulation displacement connection | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Memory modules for interface modules for PROFINET** | | | | | | | |
| For backing up the complete parameterization of the safety system without a PC/PG through the system interface | | | **3RK3931-0AA00** | | 1 | 1 unit | 42C |
| **Terminal modules for PROFINET** | | | | | | | |
| With 2 contacts | -- | | **3SU1400-1MA10-1BA1** | | 1 | 1 unit | 41J |
| With 2 contacts and integrated LED | Amber | | **3SU1401-1MC00-1CA1** | | 1 | 1 unit | 41J |
| | Red | | **3SU1401-1MC20-1CA1** | | 1 | 1 unit | 41J |
| | Yellow | | **3SU1401-1MC30-1CA1** | | 1 | 1 unit | 41J |
| | Green | | **3SU1401-1MC40-1CA1** | | 1 | 1 unit | 41J |
| | Blue | | **3SU1401-1MC50-1CA1** | | 1 | 1 unit | 41J |
| | White | | **3SU1401-1MC60-1CA1** | | 1 | 1 unit | 41J |
| With integrated LED | Amber | | **3SU1401-1ME00-1DA1** | | 1 | 1 unit | 41J |
| | Red | | **3SU1401-1ME20-1DA1** | | 1 | 1 unit | 41J |
| | Yellow | | **3SU1401-1ME30-1DA1** | | 1 | 1 unit | 41J |
| | Green | | **3SU1401-1ME40-1DA1** | | 1 | 1 unit | 41J |
| | Blue | | **3SU1401-1ME50-1DA1** | | 1 | 1 unit | 41J |
| | White | | **3SU1401-1ME60-1DA1** | | 1 | 1 unit | 41J |

3SU1401-1ME60-1DA1

3RK3931-0AA00

Flat ribbon cable, see page 13/139 onwards.

LED modules for PCB mounting, see page 13/87 onwards.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Support terminals

### Overview

***Support terminals***

The support terminals serve to collect electrical conductors, e.g. for all neutral conductors, in one enclosure. Up to four conductors, belonging to the same group, can be secured on one support terminal.

Mounting

- Front plate mounting:
  Support terminals for front plate mounting are installed on the rear face of a holder.
- Base mounting:
  The support terminals are used in 3SU18 enclosures and can be mounted at any placement position in the enclosure.

Connection methods

- Screw terminals
- Spring-loaded terminals

### Selection and ordering data

| Color | Screw terminals<br>Article No. | PU (UNIT, SET, M)<br>Price per PU | PS* | PG |
|---|---|---|---|---|
| **Support terminals for front plate mounting** | | | | |
| Black | **3SU1400-1DA10-1AA0** | 1 | 1 unit | 41J |
| Blue | **3SU1400-1DA50-1AA0** | 1 | 1 unit | 41J |
| Green/yellow | **3SU1400-1DA43-1AA0** | 1 | 1 unit | 41J |

3SU1400-1DA10-1AA0

| | Spring-loaded terminals | | | |
|---|---|---|---|---|
| Black | **3SU1400-1DA10-3AA0** | 1 | 1 unit | 41J |
| Blue | **3SU1400-1DA50-3AA0** | 1 | 1 unit | 41J |
| Green/yellow | **3SU1400-1DA43-3AA0** | 1 | 1 unit | 41J |

3SU1400-1DA50-3AA0

| Color | Screw terminals<br>Article No. | PU (UNIT, SET, M)<br>Price per PU | PS* | PG |
|---|---|---|---|---|
| **Support terminals for base mounting** | | | | |
| Black | **3SU1400-2DA10-1AA0** | 1 | 1 unit | 41J |
| Blue | **3SU1400-2DA50-1AA0** | 1 | 1 unit | 41J |
| Green/yellow | **3SU1400-2DA43-1AA0** | 1 | 1 unit | 41J |

3SU1400-2DA10-1AA0

| | Spring-loaded terminals | | | |
|---|---|---|---|---|
| Black | **3SU1400-2DA10-3AA0** | 1 | 1 unit | 41J |
| Blue | **3SU1400-2DA50-3AA0** | 1 | 1 unit | 41J |
| Green/yellow | **3SU1400-2DA43-3AA0** | 1 | 1 unit | 41J |

3SU1400-2DA50-3AA0





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

### *Pushbuttons and indicator lights in the enclosure*

Enclosures with standard fittings

Enclosed SIRIUS ACT pushbuttons and indicator lights are used as hand-operated command devices for separately allocated control units and cabinets. The devices are suitable for use in any climate and all have degree of protection IP66, IP67, IP69 (IP69K), including those with cable glands.

### *Standards*

IEC 60947-5-1

### *Versions*

The enclosed pushbuttons and indicator lights are available with conventional controls as well as for connection to AS-Interface. The following versions are available:

- Empty enclosures with 1 to 6 command points. The installed components must be ordered separately; modules for base mounting or 1-pole contact and LED modules for front plate mounting can be used, see page 13/79 onwards.
- Enclosures with standard fittings with 1 to 3 command points, e.g. EMERGENCY STOP enclosure with EMERGENCY STOP mushroom pushbutton
- Enclosures with customized fittings with 1 to 6 command points
- Special enclosure for selector switches (4 switch positions), coordinate switches, ID key-operated switches and sensor switches

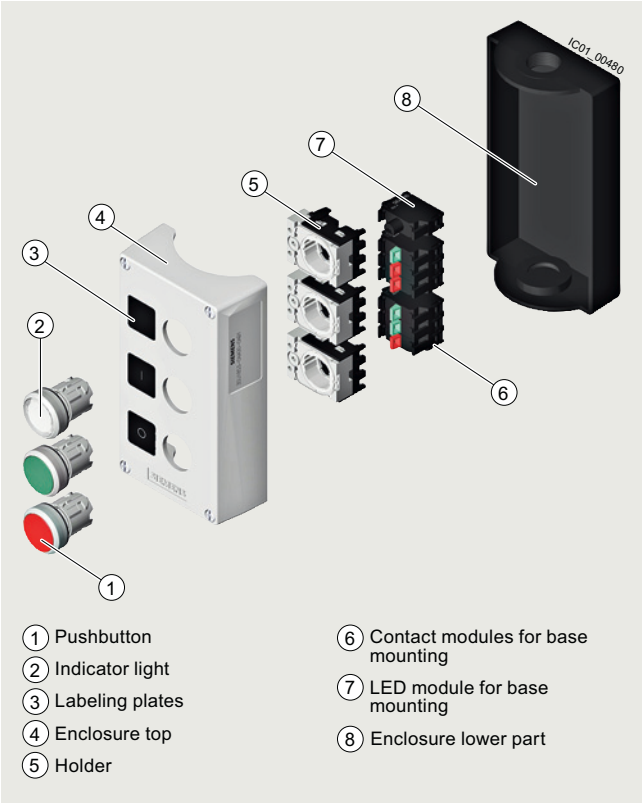
Color of the enclosures

Top:

- Gray, RAL 7035
- Pantone yellow C, for EMERGENCY STOP

Base:

- Black, RAL 9005




Setup of the pushbuttons and indicator lights in the enclosure

### *Customized enclosures*

The fittings and labeling of the command points can be chosen using the configurator on the internet. The prices depend on the equipment selected, see www.siemens.com/sirius-act/configurator.

It is also possible to create a combination of two enclosures using connectors.

## Application

The enclosures are climate-proof (KTW 24) according to ISO 6270-2 and are suitable for stationary use, and for use in marine applications.

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## Empty enclosures

### Selection and ordering data

| Color of enclosure top | Number of command points | Enclosure version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Enclosures for surface mounting** | | | | | | | |
| ***Plastic*** | | | | | | | |
| Yellow | 1 | Center command point | **3SU1801-0AA00-0AA2** | | 1 | 1 unit | 41J |
| | | With protective collar | **3SU1801-0AA00-0AC2** | | 1 | 1 unit | 41J |
| | | With recess for labeling plate | **3SU1801-0AA00-0AB2** | | 1 | 1 unit | 41J |
| | 2 | With recess for labeling plate | **3SU1802-0AA00-0AB2** | | 1 | 1 unit | 41J |
| Gray | 1 | With recess for labeling plate | **3SU1801-0AA00-0AB1** | | 1 | 1 unit | 41J |
| | 2 | With recess for labeling plate | **3SU1802-0AA00-0AB1** | | 1 | 1 unit | 41J |
| | 3 | With recess for labeling plate | **3SU1803-0AA00-0AB1** | | 1 | 1 unit | 41J |
| | 4 | With recess for labeling plate | **3SU1804-0AA00-0AB1** | | 1 | 1 unit | 41J |
| | 6 | With recess for labeling plate | **3SU1806-0AA00-0AB1** | | 1 | 1 unit | 41J |
| ***Metal*** | | | | | | | |
| Yellow | 1 | Center command point | **3SU1851-0AA00-0AA2** | | 1 | 1 unit | 41J |
| | | With protective collar | **3SU1851-0AA00-0AC2** | | 1 | 1 unit | 41J |
| | | With recess for labeling plate | **3SU1851-0AA00-0AB2** | | 1 | 1 unit | 41J |
| | | With protective collar for 5 padlocks, EMERGENCY STOP mushroom 40 mm and EMERGENCY STOP mushroom 40 mm with RONIS key-operated release | **3SU1851-0AA00-0AF2** | | 1 | 1 unit | 41J |
| | | With protective collar for 5 padlocks, EMERGENCY STOP mushroom 40 mm with BKS, Siemens[1] and O.M.R. key-operated release | **3SU1851-0AA00-0AG2** | | 1 | 1 unit | 41J |
| | | With protective collar for 5 padlocks, mushroom 60 mm | **3SU1851-0AA00-0AH2** | | 1 | 1 unit | 41J |
| | | With protective collar for 5 padlocks, mushroom 60 mm, horizontal mounting | **3SU1851-0AA00-0AJ2** | | 1 | 1 unit | 41J |
| Gray | 1 | With protective collar for 5 padlocks, mushroom 60 mm | **3SU1851-0AA00-0AH1** | | 1 | 1 unit | 41J |
| | | With protective collar for 5 padlocks, mushroom 60 mm, horizontal mounting | **3SU1851-0AA00-0AJ1** | | 1 | 1 unit | 41J |
| | | With recess for labeling plate | **3SU1851-0AA00-0AB1** | | 1 | 1 unit | 41J |
| | | With protective collar | **3SU1851-0AA00-0AC1** | | 1 | 1 unit | 41J |
| | 2 | With recess for labeling plate | **3SU1852-0AA00-0AB1** | | 1 | 1 unit | 41J |
| | 3 | With recess for labeling plate | **3SU1853-0AA00-0AB1** | | 1 | 1 unit | 41J |
| | 4 | With recess for labeling plate | **3SU1854-0AA00-0AB1** | | 1 | 1 unit | 41J |
| | 6 | With recess for labeling plate | **3SU1856-0AA00-0AB1** | | 1 | 1 unit | 41J |
| **Enclosures for selector switches (4 switch positions), coordinate switches, ID key-operated switches and sensor switches** | | | | | | | |
| ***Plastic, front plate mounting*** | | | | | | | |
| Gray | 1 | Center command point | **3SU1801-1AA00-1AA1** | | 1 | 1 unit | 41J |
| ***Metal, front plate mounting*** | | | | | | | |
| Gray | 1 | Center command point | **3SU1851-1AA00-1AA1** | | 1 | 1 unit | 41J |

3SU1801-0AA00-0AA2

3SU1802-0AA00-0AB1

3SU1851-0AA00-0AC2

3SU1851-0AA00-0AH1

3SU1853-0AA00-0AB1

3SU1854-0AA00-0AB1

3SU1801-1AA00-1AA1

[1] Siemens lock (compatible with CES locks).



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

Pushbuttons and indicator lights in the enclosure (standard fittings) are available with:

- 1 to 3 command points (equipped, for example, with A, B, C, in each case from bottom to top)
- Operational voltage up to 400 V
- Vertical mounting type
- Plastic enclosures are equipped with plastic actuators and indicators, metal enclosures are equipped with metal actuators and indicators
- Contact modules and LED modules for base mounting (are snapped into the lower part of the enclosure); screw terminals as standard; some versions also with spring-loaded terminals

***Palm pushbuttons***

Palm pushbuttons have a particularly large button surface. This means that they can be actuated quickly and easily with the hand, arm or foot.

## Selection and ordering data

| Color of enclosure top | Number of command points | Enclosure version<br>Pushbutton and indicator light fittings | Color of actuating element<br>Marking | Number of NC contacts | Number of NO contacts | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Enclosures with standard fittings** | | | | | | | | | | |
| ***Plastic*** | | | | | | | | | | |
| Yellow | 1 | Center command point<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch | A = Red | 1 | 0 | **3SU1801-0NA00-2AA2** | | 1 | 1 unit | 41J |
| | | | | 2 | 0 | **3SU1801-0NB00-2AA2** | | 1 | 1 unit | 41J |
| | | | | 1 | 1 | **3SU1801-0NP00-2AA2** | | 1 | 1 unit | 41J |
| | | Center command point<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, with RONIS SB30 lock, with key-operated release | A = Red | 1 | 1 | **3SU1801-0NN00-2AA2** | | 1 | 1 unit | 41J |
| | | With protective collar<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch | A = Red | 1 | 0 | **3SU1801-0NA00-2AC2** | | 1 | 1 unit | 41J |
| | | | | 2 | 0 | **3SU1801-0NB00-2AC2** | | 1 | 1 unit | 41J |
| | 2 | With recess for labeling plate<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with RONIS SB30 lock, key-operated release, with positive latching according to ISO 13850, rotate to unlatch/ B = Indicator light 24 V AC/DC | A = Red/ B = Red<br>A = EMERGENCY STOP/ B = "Without inscription" | 1 | 1 | **3SU1802-0NA00-2AB2** | | 1 | 1 unit | 41J |
| | | With recess for labeling plate<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch/ B = Indicator light 24 V AC/DC | A = Red/ B = Red<br>A = "Without inscription"/ B = "Without inscription" | 2 | 1 | **3SU1802-0NB00-2AB2** | | 1 | 1 unit | 41J |

3SU1801-0NA00-2AA2

3SU1801-0NA00-2AC2

3SU1802-0NA00-2AB2



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Pushbuttons and indicator lights in the enclosure

| | Color of enclosure top | Number of command points | Enclosure version<br>Pushbutton and indicator light fittings | Color of actuating element<br>Marking | Number of NC contacts | Number of NO contacts | Screw terminals<br>Article No. | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| **Enclosures with standard fittings** | | | | | | | Price per PU | | | |
| ***Plastic*** | | | | | | | | | | |
| 3SU1801-2NG00-2AA2 | Yellow | 1 | Center command point<br>A = EMERGENCY STOP palm pushbuttons with positive latching according to ISO 13850, pull to unlatch | A = Red | 1 | 1 | **3SU1801-2NG00-2AA2** | 1 | 1 unit | 41J |
| 3SU1801-0NE00-4AB2 | Yellow | 1 | With recess for labeling plate<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch | A = Red | 2 | 1 | **Spring-loaded terminals**<br>**3SU1801-0NE00-4AB2** | 1 | 1 unit | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Enclosures with standard fittings

| | Color of enclosure top | Number of command points | Enclosure version<br>Pushbutton and indicator light fittings | Color of actuating element<br>Marking | Number of NC contacts | Number of NO contacts | Screw terminals<br>Article No. | PU (UNIT, SET, M)<br>Price per PU | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| | ***Plastic*** | | | | | | | | | |
| 3SU1801-0AB00-2AB1 | Gray | 1 | With recess for labeling plate<br>A = Pushbutton | A = Green<br>A = I | 0 | 1 | **3SU1801-0AB00-2AB1** | 1 | 1 unit | 41J |
| | | | | A = Red<br>A = O | 1 | 0 | **3SU1801-0AC00-2AB1** | 1 | 1 unit | 41J |
| | | | | A = White<br>A = I | 0 | 1 | **3SU1801-0AD00-2AB1** | 1 | 1 unit | 41J |
| | | | | A = Black<br>A = O | 1 | 0 | **3SU1801-0AE00-2AB1** | 1 | 1 unit | 41J |
| | | | | | | | **Spring-loaded terminals** | | | |
| 3SU1801-0BA00-4AB1 | Gray | 1 | With recess for labeling plate<br>A = Selector switch | A = Black | 0<br>0 | 2<br>1 | **3SU1801-0BA00-4AB1**<br>**3SU1801-0BE00-4AB1** | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| | | | With recess for labeling plate<br>A = Mushroom pushbutton, 30 mm, pull to unlatch | A = Red | 1 | 0 | **3SU1801-0BC00-4AB1** | 1 | 1 unit | 41J |
| 3SU1801-0BD00-4AB1 | | | With recess for labeling plate<br>A = Illuminated pushbutton | A = Clear<br>A = I | 0 | 1 | **3SU1801-0BD00-4AB1** | 1 | 1 unit | 41J |
| | | | | | | | **Screw terminals** | | | |
| 3SU1802-0AB00-2AB1 | Gray | 2 | With recess for labeling plate<br>A = Pushbutton/<br>B = Pushbutton | A = Red/<br>B = Green<br>A = O/<br>B = I | 1 | 1 | **3SU1802-0AB00-2AB1** | 1 | 1 unit | 41J |
| | | | | A = Black/<br>B = Black<br>A = O/<br>B = I | 1 | 1 | **3SU1802-0AC00-2AB1** | 1 | 1 unit | 41J |
| 3SU1803-0AB00-2AB1 | | 3 | With recess for labeling plate<br>A = Pushbutton/<br>B = Pushbutton/<br>C = Indicator light | A = Red/<br>B = Green/<br>C = Clear<br>A = O/<br>B = I/<br>C = "Without inscription" | 1 | 1 | **3SU1803-0AB00-2AB1** | 1 | 1 unit | 41J |
| | | | | A = Black/<br>B = White/<br>C = Clear<br>A = O/<br>B = I/<br>C = "Without inscription" | 1 | 1 | **3SU1803-0AC00-2AB1** | 1 | 1 unit | 41J |
| | | | With recess for labeling plate<br>A = Pushbutton/<br>B = Pushbutton/<br>C = Pushbutton | A = Red/<br>B = Black/<br>C = Black<br>A = O/<br>B = I/<br>C = II | 1 | 2 | **3SU1803-0AD00-2AB1** | 1 | 1 unit | 41J |
| 3SU1801-2GA00-2AA1 | | 1 | Center command point<br>A = Palm pushbutton, momentary-contact type | A = Black | 0 | 1 | **3SU1801-2GA00-2AA1** | 1 | 1 unit | 41J |

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Pushbuttons and indicator lights in the enclosure

### Enclosures with standard fittings

| Color of enclosure top | Number of command points | Enclosure version<br>Pushbutton and indicator light fittings | Color of actuating element<br>Marking | Number of NC contacts | Number of NO contacts | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Metal*** | | | | | | | | | | |
| Yellow | 1 | Center command point<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch | A = Red | 1 | 0 | **3SU1851-0NA00-2AA2** | | 1 | 1 unit | 41J |
| | | | | 2 | 0 | **3SU1851-0NB00-2AA2** | | 1 | 1 unit | 41J |
| | | With protective collar<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch | A = Red | 1 | 0 | **3SU1851-0NA00-2AC2** | | 1 | 1 unit | 41J |
| | | | | 2 | 0 | **3SU1851-0NB00-2AC2** | | 1 | 1 unit | 41J |
| | | | | 2 | 0 | **3SU1851-0NC00-2AC2** | | 1 | 1 unit | 41J |
| | | | | 2 | 1 | **3SU1851-0ND00-2AC2** | | 1 | 1 unit | 41J |
| | 1 | Center command point<br>A = EMERGENCY STOP palm pushbuttons with positive latching according to ISO 13850, pull to unlatch | A = Red | 1 | 1 | **3SU1851-2NG00-2AA2** | | 1 | 1 unit | 41J |
| Gray | 1 | With recess for labeling plate<br>A = Pushbutton | A = Green<br>A = I | 0 | 1 | **3SU1851-0AB00-2AB1** | | 1 | 1 unit | 41J |
| | | | A = Red<br>A = O | 1 | 0 | **3SU1851-0AC00-2AB1** | | 1 | 1 unit | 41J |
| | | | A = White<br>A = I | 0 | 1 | **3SU1851-0AD00-2AB1** | | 1 | 1 unit | 41J |
| | | | A = Black<br>A = O | 1 | 0 | **3SU1851-0AE00-2AB1** | | 1 | 1 unit | 41J |
| | 2 | With recess for labeling plate<br>A = Pushbutton/<br>B = Pushbutton | A = Red/<br>B = Green<br>A = O/<br>B = I | 1 | 1 | **3SU1852-0AB00-2AB1** | | 1 | 1 unit | 41J |
| | | | A = Black/<br>B = White<br>A = O/<br>B = I | 1 | 1 | **3SU1852-0AC00-2AB1** | | 1 | 1 unit | 41J |
| | 3 | With recess for labeling plate<br>A = Pushbutton/<br>B = Pushbutton/<br>C = Indicator light | A = Red/<br>B = Green/<br>C = Clear<br>A = O/<br>B = I/<br>C = "Without inscription" | 1 | 1 | **3SU1853-0AB00-2AB1** | | 1 | 1 unit | 41J |
| | | With recess for labeling plate<br>A = Pushbutton/<br>B = Pushbutton/<br>C = Pushbutton | A = Red/<br>B = Black/<br>C = Black<br>A = O/<br>B = I/<br>C = II | 1 | 2 | **3SU1853-0AD00-2AB1** | | 1 | 1 unit | 41J |
| | 1 | Center command point<br>A = Palm pushbutton, momentary-contact type | A = Black | 0 | 1 | **3SU1851-2GA00-2AA1** | | 1 | 1 unit | 41J |

3SU1851-0NA00-2AA2

3SU1851-0NA00-2AC2

3SU1851-2NG00-2AA2

3SU1851-0AC00-2AB1

3SU1852-0AB00-2AB1

3SU1853-0AB00-2AB1

3SU1851-2GA00-2AA1



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Number of command points | Product function/ EMERGENCY STOP function | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Customized enclosures**[1] | | | | | | |
| | ***Plastic*** | | | | | |
| 1 | No | **3SU1801-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1801-0NZ00 K0Y** | | 1 | 1 unit | 41J |
| 2 | No | **3SU1802-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1802-0NZ00 K0Y** | | 1 | 1 unit | 41J |
| 3 | No | **3SU1803-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1803-0NZ00 K0Y** | | 1 | 1 unit | 41J |
| 4 | No | **3SU1804-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1804-0NZ00 K0Y** | | 1 | 1 unit | 41J |
| 6 | No | **3SU1806-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1806-0NZ00 K0Y** | | 1 | 1 unit | 41J |
| | ***Metal*** | | | | | |
| 1 | No | **3SU1851-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1851-0NZ00 K0Y** | | 1 | 1 unit | 41J |
| 2 | No | **3SU1852-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1852-0NZ00 K0Y** | | 1 | 1 unit | 41J |
| 3 | No | **3SU1853-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1853-0NZ00 K0Y** | | 1 | 1 unit | 41J |
| 4 | No | **3SU1854-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1854-0NZ00 K0Y** | | 1 | 1 unit | 41J |
| 6 | No | **3SU1856-0AZ00 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1856-0NZ00 K0Y** | | 1 | 1 unit | 41J |

3SU1802-0AZ00 K0Y

3SU1853-0AZ00 K0Y

[1] The fittings and labeling of the command points can be chosen using the configurator on the internet. The prices depend on the equipment selected. When ordering, always add the article number and the code **"K0Y"** and the **CIN number** from the configurator.
Ordering example:
3SU1801-0AZ00
K0Y
CIN20150609140858154554,
see www.siemens.com/sirius-act/configurator.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Pushbuttons and indicator lights in the enclosure for AS-Interface

### Overview

With AS-Interface enclosures, distributed SIRIUS ACT pushbuttons and indicator lights can be quickly connected to the AS-Interface communications system.
Using suitable components you can assemble your own enclosures with integrated AS-Interface or flexibly modify existing enclosures.

Enclosures for AS-Interface

***Enclosures***

Color of enclosure top part:

- Gray, RAL 7035
- Pantone yellow C, for EMERGENCY STOP

Color of enclosure lower part:

- Black, RAL 9005

***Equipping with AS-Interface slaves***

The following slaves are available for connecting the command points:

- Slave in A/B technology with 4 digital inputs and 3 digital outputs (4 DI/3 DQ)
- Slave with 4 digital inputs and 4 digital outputs (4 DI/4 DQ)
- F slave with 2 safe inputs for EMERGENCY STOP mushroom pushbutton (2 F-DI), also with integrated red LED for the illuminated EMERGENCY STOP mushroom pushbutton.

The following table shows the maximum number of slaves possible:

| Number of command points | Number of slaves for enclosures without EMERGENCY STOP | Number of slaves for enclosures with EMERGENCY STOP |
|---|---|---|
| 1 | -- | 1 x F slave 2 F-DI |
| 2 | 1 x slave 4 DI/4 DQ or 4 DI/3 DQ | -- |
| 3 | 1 x slave 4 DI/4 DQ or 4 DI/3 DQ | 1 x slave 4 DI/4 DQ or 4 DI/3 DQ + 1 x F slave |
| 4 | 2 x slave 4 DI/4 DQ or 4 DI/3 DQ | 2 x slave 4 DI/4 DQ or 4 DI/3 DQ + 1 x F slave |
| 6 | 2 x slave 4 DI/4 DQ or 4 DI/3 DQ | 2 x slave 4 DI/4 DQ or 4 DI/3 DQ + 1 x F slave |

***Connection***

One set of links is required in each case to connect a slave to contact modules, LED modules, and the connection element.

The connection elements are mounted in the front-end cable glands and are used to connect the AS-Interface or bring unused inputs or outputs out of the enclosure.

For connection to AS-Interface, the following options are available:

- Terminal for shaped AS-Interface cable. The cable is contacted by the insulation piercing method and routed past the enclosure on the outside (possible only with plastic enclosure).
- Cable gland for the shaped AS-Interface cable or round cable. The cable is routed into the enclosure (preferable for metal enclosure).
- Connection using M12 plug.

If less than all inputs/outputs of the installed slaves in an enclosure are used for connecting the command devices, free inputs and outputs can be routed on request to the outside through an M12 socket on the top or bottom side of the enclosure.

To supply inputs with power, the S+ connection of the slave must be assigned to the socket, for outputs the OUT– connection must be assigned. Addressing is performed using the AS-Interface connections or the integrated addressing socket. An external power supply is not required.

***Enclosures with standard fittings***

Enclosures with standard fittings are available with:

- 1 to 3 command points
- Operational voltage through AS-Interface (approx. 30 V)
- Vertical mounting type
- Plastic enclosures are equipped with plastic actuators and indicators, metal enclosures are equipped with metal actuators and indicators

The enclosures without EMERGENCY STOP each have one module with 4I/3O; the enclosures with EMERGENCY STOP mushroom pushbuttons have a safe AS-Interface slave integrated in the enclosure. Enclosures with EMERGENCY STOP mushroom pushbuttons are fitted with two NC contact modules, which are wired to the safe F slave.

The contact modules and LED modules (with spring-loaded terminals) of the command devices and the AS-Interface slaves are mounted in the base of the enclosure and connected using cables. The plastic enclosures are designed with a connection for the AS-Interface flat cable (the cable is run along the outside of the enclosure). For metal enclosures, the AS-Interface cable is run inside the enclosure.

The enclosures with EMERGENCY STOP mushroom pushbuttons are also available with an M12 connection plug.

***Customized enclosures (selection by configurator)***

To order customized 3SU18 AS-Interface enclosures with pushbuttons and indicator lights, the configurator must be used to select the fittings.
An electronic order form will be generated for the options.

Configurator, see www.siemens.com/sirius-act/configurator.

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## Selection and ordering data

| Color of enclosure top | Number of command points | Enclosure version<br>Command point fittings | Color<br>Marking | Insulation piercing method<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Enclosures with standard fittings** | | | | | | | | |
| ***Plastic*** | | | | | | | | |
| Yellow | 1 | With recess for labeling plate<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch | A = Red<br>A = "Without inscription" | **3SU1801-0NB10-4HB2** | | 1 | 1 unit | 41J |
| | | With protective collar<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch | A = Red | **3SU1801-0NB10-4HC2** | | 1 | 1 unit | 41J |
| Gray | 2 | With recess for labeling plate<br>A = Pushbutton/ B = Pushbutton | A = Red/ B = Green<br>A = O/ B = I | **3SU1802-0AB10-4HB1** | | 1 | 1 unit | 41J |
| | | | A = Black/ B = White<br>A = O/ B = I | **3SU1802-0AC10-4HB1** | | 1 | 1 unit | 41J |
| | 3 | With recess for labeling plate<br>A = Pushbutton/ B = Pushbutton/ C = Indicator light | A = Red/ B = Green/ C = Clear<br>A = O/ B = I/ C = "Without inscription" | **3SU1803-0AB10-4HB1** | | 1 | 1 unit | 41J |
| ***Metal*** | | | | | | | | |
| Yellow | 1 | With recess for labeling plate<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch | A = Red<br>A = "Without inscription" | **3SU1851-0NB10-4GB2** | | 1 | 1 unit | 41J |
| | | With protective collar<br>A = EMERGENCY STOP mushroom pushbuttons, 40 mm, with positive latching according to ISO 13850, rotate to unlatch | A = Red | **3SU1851-0NB10-4GC2** | | 1 | 1 unit | 41J |

3SU1801-0NB10-4HB2

3SU1801-0NB10-4HC2

3SU1802-0AB10-4HB1

3SU1803-0AB10-4HB1

3SU1851-0NB10-4GB2

3SU1851-0NB10-4GC2



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Pushbuttons and indicator lights in the enclosure for AS-Interface

### Customized enclosures for AS-Interface[1)]

3SU1802-0NZ10 K0Y

3SU1853-0NZ10 K0Y

| Number of command points | Product function/ EMERGENCY STOP function | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| ***Plastic*** | | | | | | |
| 1 | Yes | **3SU1801-0NZ10 K0Y** | | 1 | 1 unit | 41J |
| 2 | No | **3SU1802-0AZ10 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1802-0NZ10 K0Y** | | 1 | 1 unit | 41J |
| 3 | No | **3SU1803-0AZ10 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1803-0NZ10 K0Y** | | 1 | 1 unit | 41J |
| 4 | No | **3SU1804-0AZ10 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1804-0NZ10 K0Y** | | 1 | 1 unit | 41J |
| 6 | No | **3SU1806-0AZ10 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1806-0NZ10 K0Y** | | 1 | 1 unit | 41J |
| ***Metal*** | | | | | | |
| 1 | Yes | **3SU1851-0NZ10 K0Y** | | 1 | 1 unit | 41J |
| 2 | No | **3SU1852-0AZ10 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1852-0NZ10 K0Y** | | 1 | 1 unit | 41J |
| 3 | No | **3SU1853-0AZ10 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1853-0NZ10 K0Y** | | 1 | 1 unit | 41J |
| 4 | No | **3SU1854-0AZ10 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1854-0NZ10 K0Y** | | 1 | 1 unit | 41J |
| 6 | No | **3SU1856-0AZ10 K0Y** | | 1 | 1 unit | 41J |
| | Yes | **3SU1856-0NZ10 K0Y** | | 1 | 1 unit | 41J |

1) The fittings and labeling of the command points can be chosen using the configurator on the internet. The prices depend on the equipment selected. When ordering, always add the article number and the code **"K0Y"** and the **CIN number** from the configurator.
Ordering example:
3SU1801-0AZ00
K0Y
CIN20150609140858154554,
see www.siemens.com/sirius-act/configurator.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

***Customized enclosures for IO-Link***

With IO-Link enclosures, SIRIUS ACT pushbuttons and indicator lights can be quickly and reliably connected to the IO-Link communications system.

## Benefits

Advantages:

- Easy configuration of customized enclosure solutions with IO-Link via configurator
- Quick and easy installation due to pre-wired, customized enclosure solutions with integrated IO-Link interface

## Selection and ordering data

3SU1802-0AZ20 K0Y

| Number of command points | Product function/ EMERGENCY STOP function | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Customized enclosures for IO-Link[1)]** | | | | | | |
| ***Plastic*** | | | | | | |
| 2 | No | **3SU1802-0AZ20 K0Y** | | 1 | 1 unit | 41J |
| 3 | No | **3SU1803-0AZ20 K0Y** | | 1 | 1 unit | 41J |
| 4 | No | **3SU1804-0AZ20 K0Y** | | 1 | 1 unit | 41J |
| 6 | No | **3SU1806-0AZ20 K0Y** | | 1 | 1 unit | 41J |
| ***Metal*** | | | | | | |
| 2 | No | **3SU1852-0AZ20 K0Y** | | 1 | 1 unit | 41J |
| 3 | No | **3SU1853-0AZ20 K0Y** | | 1 | 1 unit | 41J |
| 4 | No | **3SU1854-0AZ20 K0Y** | | 1 | 1 unit | 41J |
| 6 | No | **3SU1856-0AZ20 K0Y** | | 1 | 1 unit | 41J |

1) The fittings and labeling of the command points can be chosen using the configurator on the internet. The prices depend on the equipment selected. When ordering, always add the article number and the code **"K0Y"** and the **CIN number** from the configurator.
Ordering example:
3SU1803-0AZ20
K0Y
CIN.....
see www.siemens.com/sirius-act/configurator.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Pushbuttons and indicator lights in the enclosure for connection to SIMATIC ET 200

### Overview

***SIRIUS ACT connection to safety field modules***

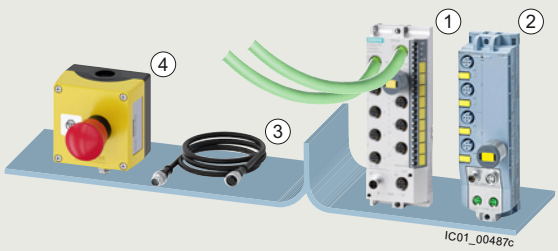
The connection of SIRIUS ACT enclosures with EMERGENCY STOP mushroom pushbutton and M12 plug-in connection to the fail-safe field modules of the SIMATIC ET 200eco PN and SIMATIC ET 200AL ensures fast and simple application in the field.

The market-compliant pin assignment of sensor, connecting cable and field module is identical in this solution. This ensures functional capability and excludes the possibility of sensor mix-ups.

The pre-wired enclosures can be implemented using various connection options with appropriate accessories (e.g. cables in different lengths, also partially preassembled).

Additional SIRIUS devices, e.g. position and safety switches, can also be connected to the field modules. Advantage: Safe system technology in the field, from the sensor through to the field module (see page 12/88 onwards).

Configurator, see
www.siemens.com/SIMATIC-ET200-safety-sensor-configurator.




① SIMATIC ET 200eco PN field module, fail-safe, 6ES7146-6FF00-0AB0
② SIMATIC ET 200AL field module, fail-safe, 6ES7146-5FF00-0BA0
③ Connecting cable, 5-pole, 3SX5601-3SV15
④ SIRIUS ACT enclosure, EMERGENCY STOP, with M12 plug, 5-pole, 3SU1801-0NH00-4NB2

SIRIUS ACT connection to safety field modules

| Sensors with M12 plug | | Type | SIL | Connection accessories M12 method, A-coded | | Type | Cable length |
|---|---|---|---|---|---|---|---|
| **SIRIUS ACT enclosure, EMERGENCY STOP** | | | | | | | |
| | **Enclosure** plastic, yellow, with 1 command point, A = EMERGENCY STOP mushroom pushbutton, red, 40 mm, with positive latching according to ISO 13850, rotate to unlatch, "Stop" label, 2 NC, spring-loaded terminals, base mounting, M12 plug (5-pole), bottom | 3SU1801-0NH00-4NB2 (see page 13/105) | 3 | | **Connecting cable** with M12 socket, 5-pole and M12 plug, 5-pole | 3SX5601-3SV15 (see page 12/46) | 1 m |
| | | | | | **or** | | |
| | | | | | **Connecting cable** with M12 socket, 5-pole, open end | 3SX5601-3SB55 (see page 12/46) | 5 m |
| | | | | | **and** | | |
| | | | | | **M12 plug** 5-pole, straight, separate item | 3RK1902-4BA00-5AA0 (see page 12/46) | -- |
| | **Enclosure** plastic, yellow, with 1 command point, A = EMERGENCY STOP mushroom pushbutton, red, 40 mm, illuminated, with positive latching according to ISO 13850, rotate to unlatch, "Stop" label, 2 NC, LED, white, 24 V, spring-loaded terminals, base mounting, M12 plug (8-pole), bottom | 3SU1801-0NV00-4SA2 (see page 13/105) | 3 | | **Connecting cable** with M12 socket, 8-pole and M12 plug, 8-pole | 3SX5601-3SV18 (see page 12/69) | 1 m |
| | | | | | **and** | | |
| | | | | | **ET 200 Y-cable for connecting 1 x 2-channel sensor** with M12 socket, 8-pole on 2 x M12 plugs, 5-pole | 6ES7194-6KC00-0XA0 (see page 12/69) | 0.2 m |
| | | | | | **or** | | |
| | **Enclosure** plastic, gray, with 2 command points, B = EMERGENCY STOP mushroom pushbutton, red, 40 mm, rotate to unlatch, 2 x 1 NC, black "Off" label, A = pushbutton, blue, 1 NO, black "Reset" label, spring-loaded terminals, base mounting, M12 plug (8-pole), bottom | 3SU1802-0NE00-4SB1 (see page 13/105) | 3 | | **Connecting cables** with M12 socket, 8-pole, straight, open end | 3SX5601-2GA03 (see page 12/69) | 3 m |
| | | | | | | 3SX5601-2GA05 (see page 12/69) | 5 m |
| | | | | | | 3SX5601-2GA10 (see page 12/69) | 10 m |
| | | | | | | 3SX5601-2GA15 (see page 12/69) | 15 m |
| | | | | | **and** | | |
| | | | | | **M12 plug** 8-pole, straight | 6GT2090-0BE00 (see page 12/69) | -- |
| | | | | | **and** | | |
| | | | | | **ET 200 Y-cable for connecting 1 x 2-channel sensor** with M12 socket, 8-pole on 2 x M12 plugs, 5-pole | 6ES7194-6KC00-0XA0 (see page 12/69) | 0.2 m |

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## Pushbuttons and indicator lights in the enclosure for connection to SIMATIC ET 200

### Selection and ordering data

| | Color of enclosure top | Number of command points | Enclosure version<br>Pushbutton and indicator light fittings | Color of actuating element<br>Marking | Number of NC contacts | Number of NO contacts | Spring-loaded terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Enclosures with standard fittings for connection to fail-safe field modules of the SIMATIC ET 200eco PN and SIMATIC ET 200AL** | | | | | | | | | | | |
| ***Plastic*** | | | | | | | | | | | |
| 3SU1801-0NH00-4NB2 | Yellow | 1 | With recess for labeling plate<br>A = EMERGENCY STOP mushroom pushbutton, 40 mm, with positive latching according to ISO 13850, rotate to unlatch, M12 plug (5-pole), bottom | A = Red<br>A = Stop | 2 | 0 | **3SU1801-0NH00-4NB2** | | 1 | 1 unit | 41J |
| 3SU1801-0NV00-4SA2 | Yellow | 1 | Center command point<br>A = EMERGENCY STOP mushroom pushbutton, 40 mm, illuminated, with positive latching according to ISO 13850, rotate to unlatch, LED, white, 24 V, M12 plug (8-pole), bottom | A = Red | 2 | 0 | **3SU1801-0NV00-4SA2** | | 1 | 1 unit | 41J |
| 3SU1802-0NE00-4SB1 | Gray | 2 | With recess for labeling plate<br>B = EMERGENCY STOP mushroom pushbutton, 40 mm, rotate to unlatch/ A = Pushbutton, M12 plug (8-pole), bottom | B = Red/ A = Blue<br>B = Off/ A = Reset | 2<br>0 | 0<br>1 | **3SU1802-0NE00-4SB1** | | 1 | 1 unit | 41J |

13

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Two-hand operation consoles

### Overview

***Equipment***

The two-hand operation consoles are pre-equipped with commanding devices. In the case of plastic enclosures the command points are equipped as standard with actuators and indicators made of plastic and in the case of metal enclosures they are equipped with actuators and indicators made of metal.

The standard equipment comprises:

- 2 black mushroom pushbuttons, diameter 40 mm, 1 NO + 1 NC
- 1 red EMERGENCY STOP mushroom pushbutton according to ISO 13850, diameter 40 mm, with positive latching, 2 NC

The plastic version can be retrofitted with up to 8 customized command points. The surface of the console has premachined breaking points for this purpose.

### Application

The two-hand operation consoles are required for use with machines and systems that have hazardous areas, in order to direct both hands of the operator to one position.

The operation consoles are primarily used on presses, stamping machines, printing presses and paper converting machines, in the chemical industry and in the rubber and plastics industries.

The control command is given by pressing the two mushroom pushbuttons on the sides simultaneously (within 0.5 s of each other) and must be maintained for as long as a hazard exists.

For the further processing of control commands, evaluation units such as 3SK safety relays are used.

***Standards***

The two-hand operation consoles comply with the requirements of EN 574/ISO 13851.

### Selection and ordering data

| Version of actuating element | Color of actuating element | Number of NO contacts | Number of NC contacts | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Two-hand operation consoles** | | | | | | | | |
| ***Plastic*** | | | | | | | | |
| None | -- | 0 | 0 | **3SU1803-3AA00-0AA1** | | 1 | 1 unit | 41J |
| A = Mushroom pushbutton/ momentary contact<br>B = EMERGENCY STOP mushroom pushbutton/ rotate to unlatch<br>C = Mushroom pushbutton/ momentary contact | A = Black<br>B = Red<br>C = Black | 2 | 4 | **3SU1803-3NB00-1AE1** | | 1 | 1 unit | 41J |
| ***Metal*** | | | | | | | | |
| None | -- | 0 | 0 | **3SU1853-3AA00-0AA1** | | 1 | 1 unit | 41J |
| A = Mushroom pushbutton/ momentary contact<br>B = EMERGENCY STOP mushroom pushbutton/ rotate to unlatch<br>C = Mushroom pushbutton/ momentary contact | A = Black<br>B = Red<br>C = Black | 2 | 4 | **3SU1853-3NB00-1AA1** | | 1 | 1 unit | 41J |
| With 4 additional command points for 22 mm command devices<br>A = Mushroom pushbutton/ momentary contact<br>B = EMERGENCY STOP mushroom pushbutton/ rotate to unlatch<br>C = Mushroom pushbutton/ momentary contact | A = Black<br>B = Red<br>C = Black | 2 | 4 | **3SU1853-3NB00-1AD1** | | 1 | 1 unit | 41J |

3SU1803-3NB00-1AE1

3SU1853-3AA00-0AA1

3SU1853-3NB00-1AA1

3SU1853-3NB00-1AD1

| Version | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Accessories** | | | | | | | |
| ***Stands for two-hand operation consoles*** | | | | | | | |
| with cutouts for metric cable glands | Metal | Black | **3SU1950-0HN10-0AA0** | | 1 | 1 unit | 41J |

3SU1950-0HN10-0AA0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

Labels can be inserted for identification purposes for the 22 mm and 30 mm design lines of the pushbuttons (clear) and illuminated pushbuttons with flat button. These insert labels are made of transparent plastic with black inscription; they can be fitted in any 90° angle.

***Inscription***

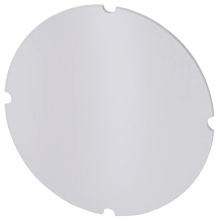
The inscription is in upper/lower case, all words begin with upper case letters. Graphic symbols, including those not listed in the catalog, are according to ISO 7000 or IEC 60417.

The insert labels without inscription are suitable for user marking with permanent pen.

Customized inscriptions, see "Options", page 13/109.

## Selection and ordering data

| Color | Marking | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Insert labels** | | | | | | |
| ***For self-inscription*** | | | | | | |
| Milky white/black (label/lettering) | None | **3SU1900-0AB71-0AA0** | | 100 | 10 units | 41J |
| ***With customized inscription*** | | | | | | |
| Milky white/black (label/lettering) | Inscriptions or symbols, see "Options", page 13/109. | **3SU1900-0AB71-0AZ0** | | 1 | 1 unit | 41J |
| ***Inscription in German*** | | | | | | |
| Milky white/black (label/lettering) | Ein | **3SU1900-0AB71-0AB0** | | 100 | 10 units | 41J |
| | Aus | **3SU1900-0AB71-0AC0** | | 100 | 10 units | 41J |
| | Auf | **3SU1900-0AB71-0AD0** | | 100 | 10 units | 41J |
| | Ab | **3SU1900-0AB71-0AE0** | | 100 | 10 units | 41J |
| | Vor | **3SU1900-0AB71-0AF0** | | 100 | 10 units | 41J |
| | Zurück | **3SU1900-0AB71-0AG0** | | 100 | 10 units | 41J |
| | Rechts | **3SU1900-0AB71-0AH0** | | 100 | 10 units | 41J |
| | Links | **3SU1900-0AJ0** | | 100 | 10 units | 41J |
| | Halt | **3SU1900-0AK0** | | 100 | 10 units | 41J |
| | Zu | **3SU1900-0AL0** | | 100 | 10 units | 41J |
| | Schnell | **3SU1900-0AM0** | | 100 | 10 units | 41J |
| | Langsam | **3SU1900-0AN0** | | 100 | 10 units | 41J |
| | Betrieb | **3SU1900-0AP0** | | 100 | 10 units | 41J |
| | Störung | **3SU1900-0AQ0** | | 100 | 10 units | 41J |
| | Einrichten | **3SU1900-0AR0** | | 100 | 10 units | 41J |
| ***Inscription in English*** | | | | | | |
| Milky white/black (label/lettering) | On | **3SU1900-0AB71-0DJ0** | | 100 | 10 units | 41J |
| | Off | **3SU1900-0AB71-0DK0** | | 100 | 10 units | 41J |
| | Up | **3SU1900-0AB71-0DL0** | | 100 | 10 units | 41J |
| | Down | **3SU1900-0AB71-0DM0** | | 100 | 10 units | 41J |
| | Forward | **3SU1900-0AB71-0DN0** | | 100 | 10 units | 41J |
| | Right | **3SU1900-0AB71-0DQ0** | | 100 | 10 units | 41J |
| | Left | **3SU1900-0AB71-0DR0** | | 100 | 10 units | 41J |
| | Stop | **3SU1900-0AB71-0DS0** | | 100 | 10 units | 41J |
| | Start | **3SU1900-0AB71-0DT0** | | 100 | 10 units | 41J |
| | Reset | **3SU1900-0AB71-0DU0** | | 100 | 10 units | 41J |
| | Test | **3SU1900-0AB71-0DV0** | | 100 | 10 units | 41J |
| | Open | **3SU1900-0AB71-0DW0** | | 100 | 10 units | 41J |
| | Close | **3SU1900-0AB71-0DX0** | | 100 | 10 units | 41J |
| | Running | **3SU1900-0AB71-0EB0** | | 100 | 10 units | 41J |
| | Fast | **3SU1900-0AB71-0EE0** | | 100 | 10 units | 41J |
| | Slow | **3SU1900-0AB71-0EF0** | | 100 | 10 units | 41J |



3SU1900-0AB71-0AA0

3SU1900-0AB71-0AB0

3SU1900-0AB71-0DN0

13

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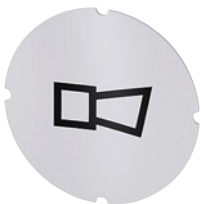
| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Insert labels** | | | | | | | |
| ***With symbol (ON/OFF)*** | | | | | | | |
| Milky white/black (label/lettering) | O | 5008 IEC | **3SU1900-0AB71-0QA0** | | 100 | 10 units | 41J |
| | I | 5007 IEC | **3SU1900-0AB71-0QB0** | | 100 | 10 units | 41J |
| | II | -- | **3SU1900-0AB71-0QC0** | | 100 | 10 units | 41J |
| | III | -- | **3SU1900-0AB71-0QD0** | | 100 | 10 units | 41J |
| ***With symbol (graphic)*** | | | | | | | |
| Milky white/black (label/lettering) | ARROW DIRECTION TO RIGHT | 5022 IEC | **3SU1900-0AB71-0QR0** | | 100 | 10 units | 41J |
| | ARROW DIRECTION UP AND TO LEFT | -- | **3SU1900-0AB71-0QS0** | | 100 | 10 units | 41J |
| | CLOCKWISE ROTATION | 0004 ISO | **3SU1900-0AB71-0QT0** | | 100 | 10 units | 41J |
| | COUNTERCLOCK-WISE ROTATION | -- | **3SU1900-0AB71-0QU0** | | 100 | 10 units | 41J |
| | RAPID TRAVERSE | 0266 ISO | **3SU1900-0AB71-0QV0** | | 100 | 10 units | 41J |
| | FEED | 0259 ISO | **3SU1900-0AB71-0QW0** | | 100 | 10 units | 41J |
| | INCREASE, PLUS | 5005 IEC | **3SU1900-0AB71-0QX0** | | 100 | 10 units | 41J |
| | DECREASE, MINUS | 5006 IEC | **3SU1900-0AB71-0QY0** | | 100 | 10 units | 41J |
| | ELECTRIC MOTOR | 0011 ISO | **3SU1900-0AB71-0RA0** | | 100 | 10 units | 41J |
| | HORN | 5014 IEC | **3SU1900-0AB71-0RB0** | | 100 | 10 units | 41J |
| | WATER INLET | -- | **3SU1900-0AB71-0RC0** | | 100 | 10 units | 41J |
| | PUMP | 0134 ISO | **3SU1900-0AB71-0RD0** | | 100 | 10 units | 41J |
| | COOLANT PUMP | 0355 ISO | **3SU1900-0AB71-0RE0** | | 100 | 10 units | 41J |
| | CLAMP | 5653 IEC | **3SU1900-0AB71-0RF0** | | 100 | 10 units | 41J |
| | UNLOCK, UNCLAMP | 5652 IEC | **3SU1900-0AB71-0RG0** | | 100 | 10 units | 41J |
| | BRAKE | -- | **3SU1900-0AB71-0RH0** | | 100 | 10 units | 41J |
| | RELEASE BRAKE | 0021 ISO | **3SU1900-0AB71-0RJ0** | | 100 | 10 units | 41J |
| | INTERLOCK | 0022 ISO | **3SU1900-0AB71-0RK0** | | 100 | 10 units | 41J |
| | UNLOCK | 0023 ISO | **3SU1900-0AB71-0RL0** | | 100 | 10 units | 41J |
| | SET UP | 0910 ISO | **3SU1900-0AB71-0RM0** | | 100 | 10 units | 41J |
| | ON/OFF, MOMENTARY CONTACT | 5011 IEC | **3SU1900-0AB71-0RN0** | | 100 | 10 units | 41J |
| | MANUAL OPERATION | 0096 ISO | **3SU1900-0AB71-0RP0** | | 100 | 10 units | 41J |
| | AUTOMATIC CYCLE | 0017 ISO | **3SU1900-0AB71-0RQ0** | | 100 | 10 units | 41J |
| | SUCTION | -- | **3SU1900-0AB71-0RR0** | | 100 | 10 units | 41J |
| | BLOWING | -- | **3SU1900-0AB71-0RS0** | | 100 | 10 units | 41J |

3SU1900-0AB71-0QC0

3SU1900-0AB71-0QT0


3SU1900-0AB71-0RB0

3SU1900-0AB71-0RN0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Options

### *Customized inscriptions*

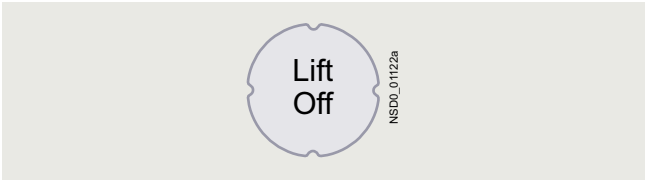
The labels can be inscribed with text and symbols not listed in the ordering data.

The default typeface used for inscriptions with text is Arial and the text is centered.

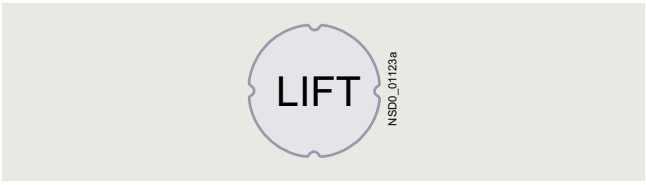
The font height is 2.5 mm.

Up to 6 characters per line are possible.

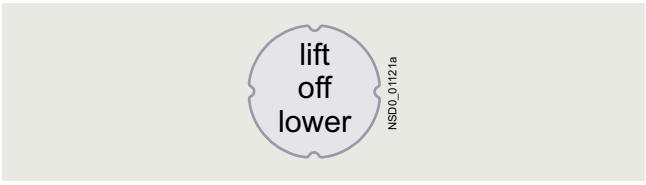
Examples of customized inscriptions



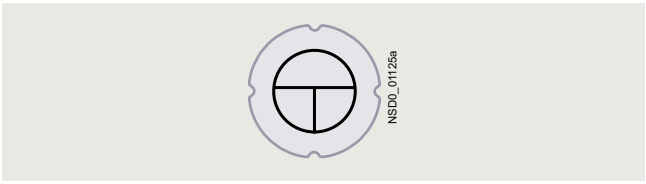

Two-line inscription in upper/lower case (Q0Y)



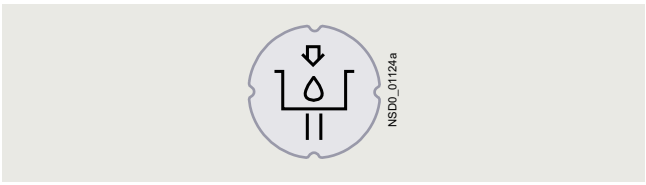

Single-line inscription in upper case (Q1Y)




Three-line inscription in lower case (Q2Y)




Symbol number 5011 according to IEC 60417 (Q3Y)




Any symbol according to order form supplement (Q9Y)

### *Ordering notes*

Append the following order codes to the article number:

- **Q0Y:** Text line(s) in upper/lower case, always upper case for beginning of line,
  e.g. Z1=Lift Z2=Lower
- **Q1Y:** Text line(s) in upper case,
  e.g. Z1=LIFT Z2=LOWER
- **Q2Y:** Text line(s) in lower case,
  e.g. Z1=lift off Z2=lower off
- **Q5Y:** Text line(s) in upper/lower case, all words begin with upper case letters,
  e.g. Z1=Lift Off Z2=Lower Off
- **Q3Y:** Symbol with number according to ISO 7000 or IEC 60417
- **Q9Y:** Inscription of choice, text or symbol,
  can only be ordered via SIRIUS ACT configurator with a Configuration Identification Number (CIN)

When ordering, specify the required inscription without umlauts (ä, ö, ü) and without spaces after Z=, Z1=, etc. in addition to the article number and order code (see ordering examples 1 to 3).

In the case of multi-line inscriptions, the text must be assigned to the respective line,
e.g. Z1=LIFT Z2=LOWER (see ordering example 1).

Symbols can also be ordered with numbers according to ISO 7000 or IEC 60417 (see ordering examples 2 and 3).

The SIRIUS ACT configurator must be used to select special inscriptions and symbols (see ordering example 4). In this case, a CIN (Configuration Identification Number) is generated for placement of future orders. It is then possible to place an order directly via the SIRIUS ACT configurator using the CIN (Mall shopping cart) or via the standard ordering channels.

Standard ordering channels:

- Configurator: www.siemens.com/sirius-act/configurator
- Industry Mall: www.siemens.com/industrymall

Ordering example 1

A label with 2 lines of text is required:

**3SU1900-0AB71-0AZ0**
**Q1Y**
Z1=LIFT
Z2=LOWER

Ordering example 2

A label inscribed with symbol No. 5011 according to IEC 60417 is required:

**3SU1900-0AB71-0AZ0**
**Q3Y**
Z=5011 IEC

Ordering example 3

A label inscribed with symbol No. 1118 according to ISO 7000 is required:

**3SU1900-0AB71-0AZ0**
**Q3Y**
Z=1118 ISO

Ordering example 4

A label with customized inscription is required:

**3SU1900-0AB71-0AZ0**
**Q9Y**
CIN.....
(20-digit number generated from the SIRIUS ACT configurator)

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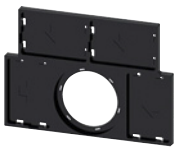
## Selection and ordering data

Multi-unit packaging, see page 13/17.

| | Material, label holder shape | Mounting diameter | Label holder color | Label fastening method | Labeling plate size Height | Labeling plate size Width | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mm | | | mm | mm | | | | | |
| **Label holders for labeling plates** | | | | | | | | | | | |
| ***For 1 labeling plate*** | | | | | | | | | | | |
| 3SU1900-0AG10-0AA0 | Plastic, with rounded bottom | 22 | Black | Self-adhesive | 12.5 | 27 | **3SU1900-0AG10-0AA0** | | 100 | 10 units | 41J |
| | | | | | 17.5 | 27 | **3SU1900-0AH10-0AA0** | | 100 | 10 units | 41J |
| | | | | | 27 | 27 | **3SU1900-0AJ10-0AA0** | | 100 | 10 units | 41J |
| | | | | Snap-on | 12.5 | 27 | **3SU1900-0AR10-0AA0** | | 100 | 10 units | 41J |
| | | | | | 17.5 | 27 | **3SU1900-0AS10-0AA0** | | 100 | 10 units | 41J |
| | | | | | 27 | 27 | **3SU1900-0AT10-0AA0** | | 100 | 10 units | 41J |
| 3SU1900-0AN10-0AA0 | Plastic, with square bottom | 22 | Black | Self-adhesive | 12.5 | 27 | **3SU1900-0AN10-0AA0** | | 100 | 10 units | 41J |
| | | | | | 17.5 | 27 | **3SU1900-0AP10-0AA0** | | 100 | 10 units | 41J |
| | | | | | 27 | 27 | **3SU1900-0AQ10-0AA0** | | 100 | 10 units | 41J |
| ***For 2 labeling plates*** | | | | | | | | | | | |
| 3SU1900-0BQ10-0AA0 | Plastic, with rounded bottom | 22 | Black | Self-adhesive | 17.5 | 27 | **3SU1900-0BQ10-0AA0** | | 1 | 10 units | 41J |
| | | | | Snap-on | 17.5 | 27 | **3SU1900-0BR10-0AA0** | | 1 | 10 units | 41J |
| ***For 4 labeling plates*** | | | | | | | | | | | |
|  3SU1900-0BT10-0AA0 | Plastic, with rounded bottom | 22 | Black | Self-adhesive | 17.5 | 27 | **3SU1900-0BS10-0AA0** | | 1 | 10 units | 41J |
| | | | | Snap-on | 17.5 | 27 | **3SU1900-0BT10-0AA0** | | 1 | 10 units | 41J |
| ***For actuators and indicators*** | | | | | | | | | | | |
| 3SU1960-0AH10-0AA0 | Plastic, with rounded bottom | 30 | Black | Self-adhesive | 17.5 | 27 | **3SU1960-0AH10-0AA0** | | 1 | 10 units | 41J |
| | | | | Snap-on | 17.5 | 27 | **3SU1960-0AS10-0AA0** | | 1 | 10 units | 41J |
| **Label holders for labeling plates, coordinate switches** | | | | | | | | | | | |
| 3SU1900-0AL10-0AA0 | Plastic, with square bottom | 22 | Black | Self-adhesive | 27 | 27 | **3SU1900-0AL10-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0AM10-0AA0 | Plastic, cross | 22 | Black | Self-adhesive | 27 | 27 | **3SU1900-0AM10-0AA0** | | 1 | 1 unit | 41J |

13



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

| | Material, label holder shape | Mounting diameter | Label holder color | Label fastening method | Labeling plate size | | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Height | Width | | | | | |
| | | mm | | | mm | mm | | | | | |
| **Label holders for labeling plates, twin pushbuttons** | | | | | | | | | | | |
| 3SU1900-0AK10-0AA0 | Plastic, rectangular | 22 | Black | Self-adhesive | 12.5 | 27 | **3SU1900-0AK10-0AA0** | | 100 | 10 units | 41J |
| **Single frames** | | | | | | | | | | | |
| 3SU1900-0AX10-0AA0 | Plastic, square | 22 | Black | -- | 29.8 | 29.8 | **3SU1900-0AX10-0AA0** | | 1 | 10 units | 41J |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Overview

Label holders of black plastic, and labeling plates (black with white print or silver-colored with black print) for sticking or snapping in place, are available for labeling. They are not suitable for EMERGENCY STOP buttons. Note mounting dimensions!
The label holders cannot be used in conjunction with sealing plugs, protective caps, protective collars and locking devices.

### *Inscription*

The inscription is in upper/lower case, all words begin with upper case letters. Graphic symbols, including those not listed in the catalog, are according to ISO 7000 or IEC 60417.

Customized inscriptions, see "Options", page 13/118.

### *Labeling plates for sticking/snapping in place*

The labels are available in three sizes:

- 12.5 mm × 27 mm
- 17.5 mm × 27 mm
- 27 mm × 27 mm

For mounting the labeling plates, you can choose between label holders for stick-on or snap-on mounting.

## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

### Labeling plates 12.5 mm x 27 mm

3SU1900-0AC16-0AA0

#### *For self-inscription*

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Black/white (label/lettering) | None | -- | **3SU1900-0AC16-0AA0** | | 100 | 10 units | 41J |

#### *With customized inscription*

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Black/white (label/lettering) | Inscriptions or symbols, see "Options", page 13/118. | | **3SU1900-0AC16-0AZ0** | | 1 | 1 unit | 41J |

3SU1900-0AC16-0AG0

#### *Inscription in German*

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Black/white (label/lettering) | Ein | -- | **3SU1900-0AC16-0AB0** | | 100 | 10 units | 41J |
| | Aus | -- | **3SU1900-0AC16-0AC0** | | 100 | 10 units | 41J |
| | Auf | -- | **3SU1900-0AD0** | | 100 | 10 units | 41J |
| | Ab | -- | **3SU1900-0AE0** | | 100 | 10 units | 41J |
| | Vor | -- | **3SU1900-0AF0** | | 100 | 10 units | 41J |
| | Zurück | -- | **3SU1900-0AG0** | | 100 | 10 units | 41J |
| | Rechts | -- | **3SU1900-0AH0** | | 100 | 10 units | 41J |
| | Links | -- | **3SU1900-0AJ0** | | 100 | 10 units | 41J |
| | Halt | -- | **3SU1900-0AK0** | | 100 | 10 units | 41J |
| | Zu | -- | **3SU1900-0AL0** | | 100 | 10 units | 41J |
| | Betrieb | -- | **3SU1900-0AP0** | | 100 | 10 units | 41J |
| | Störung | -- | **3SU1900-0AQ0** | | 100 | 10 units | 41J |
| | Hand Auto | -- | **3SU1900-0DB0** | | 100 | 10 units | 41J |
| | Hand O Auto | -- | **3SU1900-0DD0** | | 100 | 10 units | 41J |

3SU1900-0AC16-0DN0

#### *Inscription in English*

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Black/white (label/lettering) | On | -- | **3SU1900-0AC16-0DJ0** | | 100 | 10 units | 41J |
| | Off | -- | **3SU1900-0AC16-0DK0** | | 100 | 10 units | 41J |
| | Up | -- | **3SU1900-0AC16-0DL0** | | 100 | 10 units | 41J |
| | Down | -- | **3SU1900-0AC16-0DM0** | | 100 | 10 units | 41J |
| | Forward | -- | **3SU1900-0AC16-0DN0** | | 100 | 10 units | 41J |
| | Reverse | -- | **3SU1900-0AC16-0DP0** | | 100 | 10 units | 41J |
| | Right | -- | **3SU1900-0AC16-0DQ0** | | 100 | 10 units | 41J |
| | Left | -- | **3SU1900-0AC16-0DR0** | | 100 | 10 units | 41J |
| | Stop | -- | **3SU1900-0AC16-0DS0** | | 100 | 10 units | 41J |
| | Start | -- | **3SU1900-0AC16-0DT0** | | 100 | 10 units | 41J |
| | Reset | -- | **3SU1900-0AC16-0DU0** | | 100 | 10 units | 41J |
| | Test | -- | **3SU1900-0AC16-0DV0** | | 100 | 10 units | 41J |
| | Open | -- | **3SU1900-0AC16-0DW0** | | 100 | 10 units | 41J |
| | Close | -- | **3SU1900-0AC16-0DX0** | | 100 | 10 units | 41J |
| | Jog | -- | **3SU1900-0AC16-0DE0** | | 100 | 10 units | 41J |
| | Running | -- | **3SU1900-0AC16-0EB0** | | 100 | 10 units | 41J |
| | Fault | -- | **3SU1900-0AC16-0EC0** | | 100 | 10 units | 41J |
| | Run | -- | **3SU1900-0AC16-0ED0** | | 100 | 10 units | 41J |
| | Stop Start | -- | **3SU1900-0AC16-0DC0** | | 100 | 10 units | 41J |
| | Off On | -- | **3SU1900-0AC16-0DH0** | | 100 | 10 units | 41J |
| | Power off | -- | **3SU1900-0AC16-0DF0** | | 100 | 10 units | 41J |
| | Power on | -- | **3SU1900-0AC16-0DG0** | | 100 | 10 units | 41J |
| | Man O Auto | -- | **3SU1900-0AC16-0DY0** | | 100 | 10 units | 41J |
| | Man Auto | -- | **3SU1900-0AC16-0EA0** | | 100 | 10 units | 41J |





*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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**Multi-unit packaging, see page 13/17.**

## Labeling plates 12.5 mm x 27 mm

3SU1900-0AC16-0GA0

3SU1900-0AC16-0QG0

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| ***Inscription in French*** | | | | | | | |
| Black/white (label/lettering) | Marche | -- | **3SU1900-0AC16-0GA0** | | 100 | 10 units | 41J |
| | Arrêt | -- | **3SU1900-0AC16-0GB0** | | 100 | 10 units | 41J |
| | Montée | -- | **3SU1900-0AC16-0GC0** | | 100 | 10 units | 41J |
| | Descente | -- | **3SU1900-0AC16-0GD0** | | 100 | 10 units | 41J |
| | Avant | -- | **3SU1900-0AC16-0GE0** | | 100 | 10 units | 41J |
| | Retour | -- | **3SU1900-0AC16-0GF0** | | 100 | 10 units | 41J |
| | Droite | -- | **3SU1900-0AC16-0GG0** | | 100 | 10 units | 41J |
| | Gauche | -- | **3SU1900-0AC16-0GH0** | | 100 | 10 units | 41J |
| | Ouvert | -- | **3SU1900-0AC16-0GJ0** | | 100 | 10 units | 41J |
| | Fermé | -- | **3SU1900-0AC16-0GK0** | | 100 | 10 units | 41J |
| | Rapide | -- | **3SU1900-0AC16-0GL0** | | 100 | 10 units | 41J |
| | En service | -- | **3SU1900-0AC16-0GM0** | | 100 | 10 units | 41J |
| | Défaut | -- | **3SU1900-0AC16-0GN0** | | 100 | 10 units | 41J |
| | Réglage | -- | **3SU1900-0AC16-0GP0** | | 100 | 10 units | 41J |
| | Arrêt d'urgence | -- | **3SU1900-0AC16-0GQ0** | | 100 | 10 units | 41J |
| | Hors service | -- | **3SU1900-0AC16-0GR0** | | 100 | 10 units | 41J |
| | Sous tension | -- | **3SU1900-0AC16-0GS0** | | 100 | 10 units | 41J |
| | Manu Auto | -- | **3SU1900-0AC16-0GT0** | | 100 | 10 units | 41J |
| | Marche Arrêt | -- | **3SU1900-0AC16-0GU0** | | 100 | 10 units | 41J |
| | Réarmement | -- | **3SU1900-0AC16-0GV0** | | 100 | 10 units | 41J |
| ***With symbol*** | | | | | | | |
| Black/white (label/lettering) | O | -- | **3SU1900-0AC16-0QA0** | | 100 | 10 units | 41J |
| | I | -- | **3SU1900-0AC16-0QB0** | | 100 | 10 units | 41J |
| | O I | -- | **3SU1900-0AC16-0QG0** | | 100 | 10 units | 41J |
| | 1 2 | -- | **3SU1900-0AC16-0QJ0** | | 100 | 10 units | 41J |
| | ↑ ARROW DIRECTION UP | -- | **3SU1900-0AC16-0QS0** | | 100 | 10 units | 41J |

13

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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Multi-unit packaging, see page 13/17.

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Labeling plates 12.5 mm x 27 mm** | | | | | | | |
| | ***For self-inscription*** | | | | | | |
| Silver/black (label/lettering) | None | -- | **3SU1900-0AC81-0AA0** | | 100 | 10 units | 41J |
| | ***With customized inscription*** | | | | | | |
| Silver/black (label/lettering) | Inscriptions or symbols, see "Options", page 13/118. | | **3SU1900-0AC81-0AZ0** | | 1 | 1 unit | 41J |
| | ***Inscription in German*** | | | | | | |
| Silver/black (label/lettering) | Ein | -- | **3SU1900-0AC81-0AB0** | | 100 | 10 units | 41J |
| | Aus | -- | **3SU1900-0AC81-0AC0** | | 100 | 10 units | 41J |
| | Auf | -- | **3SU1900-0AC81-0AD0** | | 100 | 10 units | 41J |
| | Ab | -- | **3SU1900-0AE0** | | 100 | 10 units | 41J |
| | Vor | -- | **3SU1900-0AF0** | | 100 | 10 units | 41J |
| | Zurück | -- | **3SU1900-0AG0** | | 100 | 10 units | 41J |
| | Rechts | -- | **3SU1900-0AH0** | | 100 | 10 units | 41J |
| | Links | -- | **3SU1900-0AJ0** | | 100 | 10 units | 41J |
| | Halt | -- | **3SU1900-0AK0** | | 100 | 10 units | 41J |
| | Zu | -- | **3SU1900-0AL0** | | 100 | 10 units | 41J |
| | Schnell | -- | **3SU1900-0AM0** | | 100 | 10 units | 41J |
| | Langsam | -- | **3SU1900-0AN0** | | 100 | 10 units | 41J |
| | Betrieb | -- | **3SU1900-0AP0** | | 100 | 10 units | 41J |
| | Störung | -- | **3SU1900-0AQ0** | | 100 | 10 units | 41J |
| | Einrichten | -- | **3SU1900-0AR0** | | 100 | 10 units | 41J |
| | Hand Auto | -- | **3SU1900-0DB0** | | 100 | 10 units | 41J |
| | Stop Start | -- | **3SU1900-0DC0** | | 100 | 10 units | 41J |
| | Hand O Auto | -- | **3SU1900-0DD0** | | 100 | 10 units | 41J |
| | ***Inscription in English*** | | | | | | |
| Silver/black (label/lettering) | On | -- | **3SU1900-0DJ0** | | 100 | 10 units | 41J |
| | Off | -- | **3SU1900-0DK0** | | 100 | 10 units | 41J |
| | Up | -- | **3SU1900-0DL0** | | 100 | 10 units | 41J |
| | Down | -- | **3SU1900-0DM0** | | 100 | 10 units | 41J |
| | Stop | -- | **3SU1900-0DS0** | | 100 | 10 units | 41J |
| | Start | -- | **3SU1900-0DT0** | | 100 | 10 units | 41J |
| | Reset | -- | **3SU1900-0DU0** | | 100 | 10 units | 41J |
| | Test | -- | **3SU1900-0DV0** | | 100 | 10 units | 41J |
| | Open | -- | **3SU1900-0DW0** | | 100 | 10 units | 41J |
| | Close | -- | **3SU1900-0DX0** | | 100 | 10 units | 41J |
| | Man O Auto | -- | **3SU1900-0DY0** | | 100 | 10 units | 41J |
| | Man Auto | -- | **3SU1900-0EA0** | | 100 | 10 units | 41J |
| | Running | -- | **3SU1900-0EB0** | | 100 | 10 units | 41J |
| | Fault | -- | **3SU1900-0EC0** | | 100 | 10 units | 41J |
| | Fast | -- | **3SU1900-0EE0** | | 100 | 10 units | 41J |
| | Slow | -- | **3SU1900-0EF0** | | 100 | 10 units | 41J |
| | ***With symbol*** | | | | | | |
| Silver/black (label/lettering) | O | 5008 IEC | **3SU1900-0AC81-0QA0** | | 100 | 10 units | 41J |
| | I | 5007 IEC | **3SU1900-0AC81-0QB0** | | 100 | 10 units | 41J |
| | II | -- | **3SU1900-0AC81-0QC0** | | 100 | 10 units | 41J |
| | III | -- | **3SU1900-0AC81-0QD0** | | 100 | 10 units | 41J |
| | O I | -- | **3SU1900-0AC81-0QG0** | | 100 | 10 units | 41J |
| | I O II | -- | **3SU1900-0AC81-0QK0** | | 100 | 10 units | 41J |
| | 1 O 2 | -- | **3SU1900-0AC81-0QL0** | | 100 | 10 units | 41J |
| | → ARROW DIRECTION TO RIGHT | 5022 IEC | **3SU1900-0AC81-0QR0** | | 100 | 10 units | 41J |
| | ↑ ARROW DIRECTION UP | -- | **3SU1900-0AC81-0QS0** | | 100 | 10 units | 41J |

3SU1900-0AC81-0AA0

3SU1900-0AC81-0AB0

3SU1900-0AC81-0DK0

3SU1900-0AC81-0QK0



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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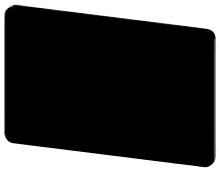
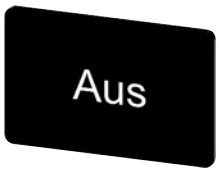
**Multi-unit packaging, see page 13/17.**

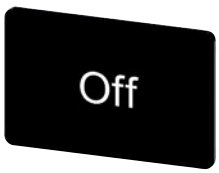
## Labeling plates 17.5 mm x 27 mm



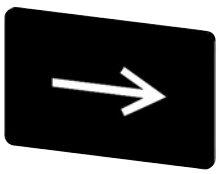
3SU1900-0AD16-0AA0




3SU1900-0AD16-0AC0




3SU1900-0AD16-0DK0



3SU1900-0AD16-0QR0

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| ***For self-inscription*** | | | | | | | |
| Black/white (label/lettering) | None | -- | **3SU1900-0AD16-0AA0** | | 100 | 10 units | 41J |
| ***With customized inscription*** | | | | | | | |
| Black/white (label/lettering) | Inscriptions or symbols, see "Options", page 13/118. | | **3SU1900-0AD16-0AZ0** | | 1 | 1 unit | 41J |
| ***Inscription in German*** | | | | | | | |
| Black/white (label/lettering) | Ein | -- | **3SU1900-0AD16-0AB0** | | 100 | 10 units | 41J |
| | Aus | -- | **3SU1900-0AD16-0AC0** | | 100 | 10 units | 41J |
| | Auf | -- | **3SU1900-0AD16-0AD0** | | 100 | 10 units | 41J |
| | Ab | -- | **3SU1900-0AE0** | | 100 | 10 units | 41J |
| | Vor | -- | **3SU1900-0AF0** | | 100 | 10 units | 41J |
| | Zurück | -- | **3SU1900-0AG0** | | 100 | 10 units | 41J |
| | Halt | -- | **3SU1900-0AK0** | | 100 | 10 units | 41J |
| | Zu | -- | **3SU1900-0AL0** | | 100 | 10 units | 41J |
| | Betrieb | -- | **3SU1900-0AP0** | | 100 | 10 units | 41J |
| | Störung | -- | **3SU1900-0AQ0** | | 100 | 10 units | 41J |
| | Hand Auto | -- | **3SU1900-0DB0** | | 100 | 10 units | 41J |
| ***Inscription in English*** | | | | | | | |
| Black/white (label/lettering) | Stop Start | -- | **3SU1900-0AD16-0DC0** | | 100 | 10 units | 41J |
| | On | -- | **3SU1900-0AD16-0DJ0** | | 100 | 10 units | 41J |
| | Off | -- | **3SU1900-0AD16-0DK0** | | 100 | 10 units | 41J |
| | Up | -- | **3SU1900-0AD16-0DL0** | | 100 | 10 units | 41J |
| | Down | -- | **3SU1900-0AD16-0DM0** | | 100 | 10 units | 41J |
| | Forward | -- | **3SU1900-0AD16-0DN0** | | 100 | 10 units | 41J |
| | Reverse | -- | **3SU1900-0AD16-0DP0** | | 100 | 10 units | 41J |
| | Right | -- | **3SU1900-0AD16-0DQ0** | | 100 | 10 units | 41J |
| | Stop | -- | **3SU1900-0AD16-0DS0** | | 100 | 10 units | 41J |
| | Start | -- | **3SU1900-0AD16-0DT0** | | 100 | 10 units | 41J |
| | Open | -- | **3SU1900-0AD16-0DW0** | | 100 | 10 units | 41J |
| | Close | -- | **3SU1900-0AD16-0DX0** | | 100 | 10 units | 41J |
| | Man Auto | -- | **3SU1900-0AD16-0EA0** | | 100 | 10 units | 41J |
| | Running | -- | **3SU1900-0AD16-0EB0** | | 100 | 10 units | 41J |
| | Fault | -- | **3SU1900-0AD16-0EC0** | | 100 | 10 units | 41J |
| ***Inscription in French*** | | | | | | | |
| Black/white (label/lettering) | Marche | -- | **3SU1900-0AD16-0GA0** | | 100 | 10 units | 41J |
| | Arrêt | -- | **3SU1900-0AD16-0GB0** | | 100 | 10 units | 41J |
| | Droite | -- | **3SU1900-0AD16-0GG0** | | 100 | 10 units | 41J |
| | Gauche | -- | **3SU1900-0AD16-0GH0** | | 100 | 10 units | 41J |
| | En service | -- | **3SU1900-0AD16-0GM0** | | 100 | 10 units | 41J |
| | Défaut | -- | **3SU1900-0AD16-0GN0** | | 100 | 10 units | 41J |
| | Sous tension | -- | **3SU1900-0AD16-0GS0** | | 100 | 10 units | 41J |
| | Manu Auto | -- | **3SU1900-0AD16-0GT0** | | 100 | 10 units | 41J |
| | Marche Arrêt | -- | **3SU1900-0AD16-0GU0** | | 100 | 10 units | 41J |
| | Réarmement | -- | **3SU1900-0AD16-0GV0** | | 100 | 10 units | 41J |
| ***With symbol*** | | | | | | | |
| Black/white (label/lettering) | O | 5008 IEC | **3SU1900-0AD16-0QA0** | | 100 | 10 units | 41J |
| | I | 5007 IEC | **3SU1900-0AD16-0QB0** | | 100 | 10 units | 41J |
| | O I | -- | **3SU1900-0AD16-0QG0** | | 100 | 10 units | 41J |
| | → ARROW DIRECTION TO RIGHT | 5022 IEC | **3SU1900-0AD16-0QR0** | | 100 | 10 units | 41J |
| | ↑ ARROW DIRECTION UP | -- | **3SU1900-0AD16-0QS0** | | 100 | 10 units | 41J |

13

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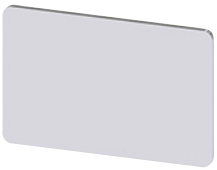
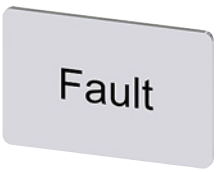
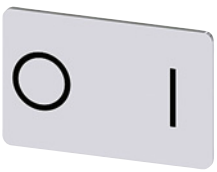
**Multi-unit packaging, see page 13/17.**

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Labeling plates 17.5 mm x 27 mm** | | | | | | | |
| | | | | | | | |
|  3SU1900-0AD81-0AA0 | | | | | | | |
| ***For self-inscription*** | | | | | | | |
| Silver/black (label/lettering) | None | -- | **3SU1900-0AD81-0AA0** | | 100 | 10 units | 41J |
| ***With customized inscription*** | | | | | | | |
| Silver/black (label/lettering) | Inscriptions or symbols, see "Options", page 13/118. | | **3SU1900-0AD81-0AZ0** | | 1 | 1 unit | 41J |
| | | | | | | | |
| 3SU1900-0AD81-0AP0 | | | | | | | |
| ***Inscription in German*** | | | | | | | |
| Silver/black (label/lettering) | Ein | -- | **3SU1900-0AD81-0AB0** | | 100 | 10 units | 41J |
| | Aus | -- | **3SU1900-0AD81-0AC0** | | 100 | 10 units | 41J |
| | Auf | -- | **3SU1900-0AD81-0AD0** | | 100 | 10 units | 41J |
| | Ab | -- | **3SU1900-0AD81-0AE0** | | 100 | 10 units | 41J |
| | Vor | -- | **3SU1900-0AF0** | | 100 | 10 units | 41J |
| | Zurück | -- | **3SU1900-0AG0** | | 100 | 10 units | 41J |
| | Rechts | -- | **3SU1900-0AH0** | | 100 | 10 units | 41J |
| | Halt | -- | **3SU1900-0AK0** | | 100 | 10 units | 41J |
| | Zu | -- | **3SU1900-0AL0** | | 100 | 10 units | 41J |
| | Betrieb | -- | **3SU1900-0AP0** | | 100 | 10 units | 41J |
| | Störung | -- | **3SU1900-0AQ0** | | 100 | 10 units | 41J |
| | Hand Auto | -- | **3SU1900-0DB0** | | 100 | 10 units | 41J |
| | Hand O Auto | -- | **3SU1900-0DD0** | | 100 | 10 units | 41J |
| | | | | | | | |
|  3SU1900-0AD81-0EC0 | | | | | | | |
| ***Inscription in English*** | | | | | | | |
| Silver/black (label/lettering) | On | -- | **3SU1900-0AD81-0DJ0** | | 100 | 10 units | 41J |
| | Off | -- | **3SU1900-0AD81-0DK0** | | 100 | 10 units | 41J |
| | Stop | -- | **3SU1900-0AD81-0DS0** | | 100 | 10 units | 41J |
| | Start | -- | **3SU1900-0AD81-0DT0** | | 100 | 10 units | 41J |
| | Reset | -- | **3SU1900-0AD81-0DU0** | | 100 | 10 units | 41J |
| | Man O Auto | -- | **3SU1900-0AD81-0DY0** | | 100 | 10 units | 41J |
| | Fault | -- | **3SU1900-0AD81-0EC0** | | 100 | 10 units | 41J |
| | | | | | | | |
|  3SU1900-0AD81-0QG0 | | | | | | | |
| ***With symbol*** | | | | | | | |
| Silver/black (label/lettering) | O | 5008 IEC | **3SU1900-0AD81-0QA0** | | 100 | 10 units | 41J |
| | I | 5007 IEC | **3SU1900-0AD81-0QB0** | | 100 | 10 units | 41J |
| | O I | -- | **3SU1900-0AD81-0QG0** | | 100 | 10 units | 41J |
| | I O II | -- | **3SU1900-0AD81-0QK0** | | 100 | 10 units | 41J |
| | 1 O 2 | -- | **3SU1900-0AD81-0QL0** | | 100 | 10 units | 41J |
| | → ARROW DIRECTION TO RIGHT | 5022 IEC | **3SU1900-0AD81-0QR0** | | 100 | 10 units | 41J |
| | ↑ ARROW DIRECTION UP | -- | **3SU1900-0AD81-0QS0** | | 100 | 10 units | 41J |



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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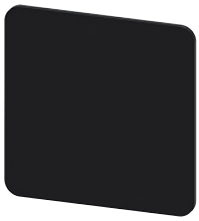
**Multi-unit packaging, see page 13/17.**

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Labeling plates 27 mm x 27 mm** | | | | | | | |
| ***For self-inscription*** | | | | | | | |
| Black/white (label/lettering) | None | -- | **3SU1900-0AE16-0AA0** | | 100 | 10 units | 41J |
| Silver/black (label/lettering) | None | -- | **3SU1900-0AE81-0AA0** | | 100 | 10 units | 41J |
| ***With customized inscription*** | | | | | | | |
| Black/white (label/lettering) | Inscriptions or symbols, see "Options", page 13/118. | | **3SU1900-0AE16-0AZ0** | | 1 | 1 unit | 41J |
| Silver/black (label/lettering) | | | **3SU1900-0AE81-0AZ0** | | 1 | 1 unit | 41J |
| ***Inscription in German*** | | | | | | | |
| Black/white (label/lettering) | Ein | -- | **3SU1900-0AE16-0AB0** | | 100 | 10 units | 41J |
| | Aus | -- | **3SU1900-0AE16-0AC0** | | 100 | 10 units | 41J |
| | Auf | -- | **3SU1900-0AE16-0AD0** | | 100 | 10 units | 41J |
| | Ab | -- | **3SU1900-0AE16-0AE0** | | 100 | 10 units | 41J |
| | Vor | -- | **3SU1900-0AF16-0AF0** | | 100 | 10 units | 41J |
| | Zurück | -- | **3SU1900-0AE16-0AG0** | | 100 | 10 units | 41J |
| | Rechts | -- | **3SU1900-0AE16-0AH0** | | 100 | 10 units | 41J |
| | Links | -- | **3SU1900-0AE16-0AJ0** | | 100 | 10 units | 41J |
| | Halt | -- | **3SU1900-0AE16-0AK0** | | 100 | 10 units | 41J |
| | Zu | -- | **3SU1900-0AE16-0AL0** | | 100 | 10 units | 41J |
| | Betrieb | -- | **3SU1900-0AE16-0AP0** | | 100 | 10 units | 41J |
| | Störung | -- | **3SU1900-0AE16-0AQ0** | | 100 | 10 units | 41J |
| | Hand Auto | -- | **3SU1900-0AE16-0DB0** | | 100 | 10 units | 41J |
| ***Inscription in English*** | | | | | | | |
| Black/white (label/lettering) | On | -- | **3SU1900-0AE16-0DJ0** | | 100 | 10 units | 41J |
| | Off | -- | **3SU1900-0AE16-0DK0** | | 100 | 10 units | 41J |
| | Up | -- | **3SU1900-0AE16-0DL0** | | 100 | 10 units | 41J |
| | Down | -- | **3SU1900-0AE16-0DM0** | | 100 | 10 units | 41J |
| | Forward | -- | **3SU1900-0AE16-0DN0** | | 100 | 10 units | 41J |
| | Reverse | -- | **3SU1900-0AE16-0DP0** | | 100 | 10 units | 41J |
| | Stop | -- | **3SU1900-0AE16-0DS0** | | 100 | 10 units | 41J |
| | Start | -- | **3SU1900-0AE16-0DT0** | | 100 | 10 units | 41J |
| | EMERGENCY STOP | -- | **3SU1900-0AE16-0DA0** | | 100 | 10 units | 41J |
| | Stop Start | -- | **3SU1900-0AE16-0DC0** | | 100 | 10 units | 41J |
| ***Inscription in French*** | | | | | | | |
| Black/white (label/lettering) | Marche | -- | **3SU1900-0AE16-0GA0** | | 100 | 10 units | 41J |
| | Arrêt | -- | **3SU1900-0AE16-0GB0** | | 100 | 10 units | 41J |
| | Montée | -- | **3SU1900-0AE16-0GC0** | | 100 | 10 units | 41J |
| | Descente | -- | **3SU1900-0AE16-0GD0** | | 100 | 10 units | 41J |
| | En service | -- | **3SU1900-0AE16-0GM0** | | 100 | 10 units | 41J |
| | Défaut | -- | **3SU1900-0AE16-0GN0** | | 100 | 10 units | 41J |
| | Sous tension | -- | **3SU1900-0AE16-0GS0** | | 100 | 10 units | 41J |
| | Manu Auto | -- | **3SU1900-0AE16-0GT0** | | 100 | 10 units | 41J |
| | Marche Arrêt | | **3SU1900-0AE16-0GU0** | | 100 | 10 units | 41J |
| ***With symbol*** | | | | | | | |
| Black/white (label/lettering) | O I | -- | **3SU1900-0AE16-0QG0** | | 100 | 10 units | 41J |
| | → ARROW DIRECTION TO RIGHT | 5022 IEC | **3SU1900-0AE16-0QR0** | | 100 | 10 units | 41J |



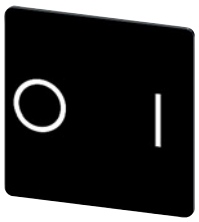
3SU1900-0AE16-0AA0

3SU1900-0AE81-0AA0

3SU1900-0AE16-0AD0

3SU1900-0AE16-0DK0

3SU1900-0AE16-0GB0




3SU1900-0AE16-0QG0

13

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## Options

### *Customized inscriptions*

The labels can be inscribed with text and symbols not listed in the ordering data.

The default typeface used for inscriptions with text is Arial and the text is centered.

Up to 11 characters per line are possible.

Font height

Label size 12.5 mm × 27 mm, max. 3 lines:

| | | |
|---|---|---|
| Font height | 1-line | 4 mm |
| | 2-line | 3 mm |
| | 3-line | 1.75 mm |

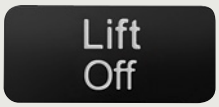
Label size 17.5 mm × 27 mm, max. 3 lines:

| | | |
|---|---|---|
| Font height | 1- to 2-line | 4 mm |
| | 3-line | 3 mm |

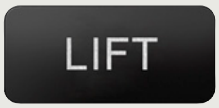
Label size 27 mm × 27 mm, max. 5 lines:

| | | |
|---|---|---|
| Font height | 1- to 3-line | 4 mm |
| | 4-line | 3.5 mm |
| | 5-line | 3 mm |

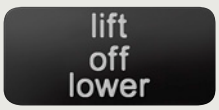
Examples of customized inscriptions



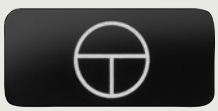

Two-line inscription in upper/lower case (Q0Y)




Single-line inscription in upper case (Q1Y)




Three-line inscription in lower case (Q2Y)



Symbol number 5011 according to IEC 60417 (Q3Y)

Any symbol according to order form supplement (Q9Y)

### *Ordering notes*

Append the following order codes to the article number:

- **Q0Y:** Text line(s) in upper/lower case, always upper case for beginning of line, e.g. Z1=Lift Z2=Lower
- **Q1Y:** Text line(s) in upper case, e.g. Z1=LIFT Z2=LOWER
- **Q2Y:** Text line(s) in lower case, e.g. Z1=lift off Z2=lower off
- **Q5Y:** Text line(s) in upper/lower case, all words begin with upper case letters, e.g. Z1=Lift Off Z2=Lower Off
- **Q3Y:** Symbol with number according to ISO 7000 or IEC 60417
- **Q9Y:** Inscription of choice, text or symbol, can only be ordered via SIRIUS ACT configurator with a Configuration Identification Number (CIN)

When ordering, specify the required inscription without umlauts (ä, ö, ü) and without spaces after Z=, Z1=, etc. in addition to the article number and order code (see ordering examples 1 to 3).

In the case of multi-line inscriptions, the text must be assigned to the respective line, e.g. Z1=LIFT Z2=LOWER (see ordering example 1).

Symbols can also be ordered with numbers according to ISO 7000 or IEC 60417 (see ordering examples 2 and 3).

The SIRIUS ACT configurator must be used to select special inscriptions and symbols (see ordering example 4). In this case, a CIN (Configuration Identification Number) is generated for placement of future orders. It is then possible to place an order directly via the SIRIUS ACT configurator using the CIN (Mall shopping cart) or via the standard ordering channels.

Standard ordering channels:

- Configurator: www.siemens.com/sirius-act/configurator
- Industry Mall: www.siemens.com/industrymall

Ordering example 1

A label with 2 lines of text is required:

**3SU1900-0AC16-0AZ0**
**Q1Y**
Z1=LIFT
Z2=LOWER

Ordering example 2

A label inscribed with symbol No. 5011 according to IEC 60417 is required:

**3SU1900-0AC16-0AZ0**
**Q3Y**
Z=5011 IEC

Ordering example 3

A label inscribed with symbol No. 1118 according to ISO 7000 is required:

**3SU1900-0AC16-0AZ0**
**Q3Y**
Z=1118 ISO

Ordering example 4

An indicator light with customized inscription is required:

**3SU1900-0AC16-0AZ0**
**Q9Y**
CIN.....
(20-digit number generated from the SIRIUS ACT configurator)

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## Overview

The labeling plates in size 22 mm x 22 mm can be attached to enclosures with recesses for labels. There are versions in black with white print or silver-colored with black print.

### *Inscription*

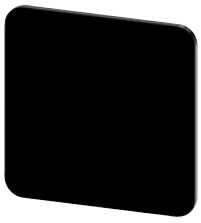
The inscription is in upper/lower case, all words begin with upper case letters. Graphic symbols, including those not listed in the catalog, are according to ISO 7000 or IEC 60417.

Customized inscriptions, see "Options", page 13/122.

## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Labeling plates 22 mm x 22 mm** | | | | | | | |
| ***For self-inscription*** | | | | | | | |
| Black/white (label/lettering) | None | -- | **3SU1900-0AF16-0AA0** | | 100 | 10 units | 41J |
| ***With customized inscription*** | | | | | | | |
| Black/white (label/lettering) | Inscriptions or symbols, see "Options", page 13/122. | | **3SU1900-0AF16-0AZ0** | | 1 | 1 unit | 41J |
| ***Inscription in German*** | | | | | | | |
| Black/white (label/lettering) | Ein | -- | **3SU1900-0AF16-0AB0** | | 1 | 10 units | 41J |
| | Aus | -- | **3SU1900-0AF16-0AC0** | | 1 | 10 units | 41J |
| | Auf | -- | **3SU1900-0AF16-0AD0** | | 1 | 10 units | 41J |
| | Ab | -- | **3SU1900-0AE16-0AE0** | | 1 | 10 units | 41J |
| | Vor | -- | **3SU1900-0AF16-0AF0** | | 1 | 10 units | 41J |
| | Zurück | -- | **3SU1900-0AF16-0AG0** | | 1 | 10 units | 41J |
| | Rechts | -- | **3SU1900-0AF16-0AH0** | | 1 | 10 units | 41J |
| | Links | -- | **3SU1900-0AF16-0AJ0** | | 1 | 10 units | 41J |
| | Halt | -- | **3SU1900-0AF16-0AK0** | | 1 | 10 units | 41J |
| | Zu | -- | **3SU1900-0AF16-0AL0** | | 1 | 10 units | 41J |
| | Schnell | -- | **3SU1900-0AF16-0AM0** | | 1 | 10 units | 41J |
| | Langsam | -- | **3SU1900-0AF16-0AN0** | | 1 | 10 units | 41J |
| | Betrieb | -- | **3SU1900-0AF16-0AP0** | | 1 | 10 units | 41J |
| | Störung | -- | **3SU1900-0AF16-0AQ0** | | 1 | 10 units | 41J |
| | Einrichten | -- | **3SU1900-0AF16-0AR0** | | 1 | 10 units | 41J |
| | NOT AUS | -- | **3SU1900-0AF16-0AS0** | | 1 | 10 units | 41J |
| ***Inscription in English*** | | | | | | | |
| Black/white (label/lettering) | On | -- | **3SU1900-0AF16-0DJ0** | | 1 | 10 units | 41J |
| | Off | -- | **3SU1900-0AF16-0DK0** | | 1 | 10 units | 41J |
| | Up | -- | **3SU1900-0AF16-0DL0** | | 1 | 10 units | 41J |
| | Down | -- | **3SU1900-0AF16-0DM0** | | 1 | 10 units | 41J |
| | Forward | -- | **3SU1900-0AF16-0DN0** | | 1 | 10 units | 41J |
| | Right | -- | **3SU1900-0AF16-0DQ0** | | 1 | 10 units | 41J |
| | Left | -- | **3SU1900-0AF16-0DR0** | | 1 | 10 units | 41J |
| | Stop | -- | **3SU1900-0AF16-0DS0** | | 1 | 10 units | 41J |
| | Start | -- | **3SU1900-0AF16-0DT0** | | 1 | 10 units | 41J |
| | Reset | -- | **3SU1900-0AF16-0DU0** | | 1 | 10 units | 41J |
| | Test | -- | **3SU1900-0AF16-0DV0** | | 1 | 10 units | 41J |
| | Open | -- | **3SU1900-0AF16-0DW0** | | 1 | 10 units | 41J |
| | Close | -- | **3SU1900-0AF16-0DX0** | | 1 | 10 units | 41J |
| | Running | -- | **3SU1900-0AF16-0EB0** | | 1 | 10 units | 41J |
| | Fault | -- | **3SU1900-0AF16-0EC0** | | 1 | 10 units | 41J |
| | Fast | -- | **3SU1900-0AF16-0EE0** | | 1 | 10 units | 41J |
| | Slow | -- | **3SU1900-0AF16-0EF0** | | 1 | 10 units | 41J |
| | EMERGENCY STOP | -- | **3SU1900-0AF16-0DA0** | | 1 | 10 units | 41J |



3SU1900-0AF16-0AA0

3SU1900-0AF16-0AB0

3SU1900-0AF16-0AP0

3SU1900-0AF16-0DM0

3SU1900-0AF16-0EC0



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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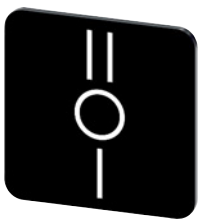
Multi-unit packaging, see page 13/17.

## Labeling plates 22 mm x 22 mm

3SU1900-0AF16-0GA0

3SU1900-0AF16-0GB0


3SU1900-0AF16-0QQ0

3SU1900-0AF16-0RW0

### *Inscription in French*

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Black/white (label/lettering) | Marche | -- | **3SU1900-0AF16-0GA0** | | 1 | 10 units | 41J |
| | Arrêt | -- | **3SU1900-0AF16-0GB0** | | 1 | 10 units | 41J |
| | Montée | -- | **3SU1900-0AF16-0GC0** | | 1 | 10 units | 41J |
| | Descente | -- | **3SU1900-0AF16-0GD0** | | 1 | 10 units | 41J |
| | Retour | -- | **3SU1900-0AF16-0GF0** | | 1 | 10 units | 41J |
| | Droite | -- | **3SU1900-0AF16-0GG0** | | 1 | 10 units | 41J |
| | Gauche | -- | **3SU1900-0AF16-0GH0** | | 1 | 10 units | 41J |
| | Ouvert | -- | **3SU1900-0AF16-0GJ0** | | 1 | 10 units | 41J |
| | Fermé | -- | **3SU1900-0AF16-0GK0** | | 1 | 10 units | 41J |
| | Rapide | -- | **3SU1900-0AF16-0GL0** | | 1 | 10 units | 41J |
| | En service | -- | **3SU1900-0AF16-0GM0** | | 1 | 10 units | 41J |
| | Défaut | -- | **3SU1900-0AF16-0GN0** | | 1 | 10 units | 41J |
| | Sous tension | -- | **3SU1900-0AF16-0GS0** | | 1 | 10 units | 41J |
| | Manu Auto | -- | **3SU1900-0AF16-0GT0** | | 1 | 10 units | 41J |
| | Marche Arrêt | -- | **3SU1900-0AF16-0GU0** | | 1 | 10 units | 41J |
| | Réarmement | -- | **3SU1900-0AF16-0GV0** | | 1 | 10 units | 41J |
| | Lent | -- | **3SU1900-0AF16-0GW0** | | 1 | 10 units | 41J |
| | Arrêt d'urgence | -- | **3SU1900-0AF16-0GQ0** | | 1 | 10 units | 41J |

### *With symbol (ON/OFF)*

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Black/white (label/lettering) | O | 5008 IEC | **3SU1900-0AF16-0QA0** | | 1 | 10 units | 41J |
| | I | 5007 IEC | **3SU1900-0AF16-0QB0** | | 1 | 10 units | 41J |
| | II | -- | **3SU1900-0AF16-0QC0** | | 1 | 10 units | 41J |
| | III | -- | **3SU1900-0AF16-0QD0** | | 1 | 10 units | 41J |
| | O I | -- | **3SU1900-0AF16-0QG0** | | 1 | 10 units | 41J |
| | I O II | -- | **3SU1900-0AF16-0QK0** | | 1 | 10 units | 41J |
| | I<br>O<br>(below each other) | -- | **3SU1900-0AF16-0QP0** | | 1 | 10 units | 41J |
| | II<br>O<br>I<br>(below each other) | -- | **3SU1900-0AF16-0QQ0** | | 1 | 10 units | 41J |

### *With symbol (graphic)*

| Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| Black/white (label/lettering) | ARROW DIRECTION TO RIGHT | 5022 IEC | **3SU1900-0AF16-0QR0** | | 1 | 10 units | 41J |
| | PUMP | 0134 ISO | **3SU1900-0AF16-0RD0** | | 1 | 10 units | 41J |
| | FAN | -- | **3SU1900-0AF16-0RV0** | | 1 | 10 units | 41J |
| | COOLING | -- | **3SU1900-0AF16-0RW0** | | 1 | 10 units | 41J |
| | ILLUMINATION | -- | **3SU1900-0AF16-0RX0** | | 1 | 10 units | 41J |
| | MOTOR | -- | **3SU1900-0AF16-0RY0** | | 1 | 10 units | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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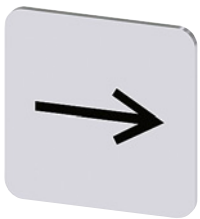
| Multi-unit packaging, see page 13/17. | Color | Marking | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Labeling plates 22 mm x 22 mm** | | | | | | | | |
| 3SU1900-0AF81-0AA0 | ***For self-inscription*** | | | | | | | |
| | Silver/black (label/lettering) | None | -- | **3SU1900-0AF81-0AA0** | | 100 | 10 units | 41J |
| | ***With customized inscription*** | | | | | | | |
| | Silver/black (label/lettering) | Inscriptions or symbols, see "Options", page 13/122. | | **3SU1900-0AF81-0AZ0** | | 1 | 1 unit | 41J |
| 3SU1900-0AF81-0AB0 | ***Inscription in German*** | | | | | | | |
| | Silver/black (label/lettering) | Ein | -- | **3SU1900-0AF81-0AB0** | | 1 | 10 units | 41J |
| | | Aus | -- | **3SU1900-0AF81-0AC0** | | 1 | 10 units | 41J |
| | | Auf | -- | **3SU1900-0AF81-0AD0** | | 1 | 10 units | 41J |
| | | Ab | -- | **3SU1900-0AF81-0AE0** | | 1 | 10 units | 41J |
| | | Vor | -- | **3SU1900-0AF81-0AF0** | | 1 | 10 units | 41J |
| | | Zurück | -- | **3SU1900-0AG0** | | 1 | 10 units | 41J |
| | | Rechts | -- | **3SU1900-0AH0** | | 1 | 10 units | 41J |
| | | Links | -- | **3SU1900-0AJ0** | | 1 | 10 units | 41J |
| 3SU1900-0AF81-0DD0 | | Halt | -- | **3SU1900-0AK0** | | 1 | 10 units | 41J |
| | | Zu | -- | **3SU1900-0AL0** | | 1 | 10 units | 41J |
| | | Schnell | -- | **3SU1900-0AM0** | | 1 | 10 units | 41J |
| | | Langsam | -- | **3SU1900-0AN0** | | 1 | 10 units | 41J |
| | | Betrieb | -- | **3SU1900-0AP0** | | 1 | 10 units | 41J |
| | | Störung | -- | **3SU1900-0AQ0** | | 1 | 10 units | 41J |
| | | Einrichten | -- | **3SU1900-0AR0** | | 1 | 10 units | 41J |
| | | NOT AUS | -- | **3SU1900-0AS0** | | 1 | 10 units | 41J |
| | | NOT-HALT | -- | **3SU1900-0AT0** | | 1 | 10 units | 41J |
| | | Hand O Auto | -- | **3SU1900-0DD0** | | 1 | 10 units | 41J |
| 3SU1900-0AF81-0DU0 | ***Inscription in English*** | | | | | | | |
| | Silver/black (label/lettering) | Stop | -- | **3SU1900-0AF81-0DS0** | | 1 | 10 units | 41J |
| | | Start | -- | **3SU1900-0AF81-0DT0** | | 1 | 10 units | 41J |
| | | Reset | -- | **3SU1900-0AF81-0DU0** | | 1 | 10 units | 41J |
| | | Test | -- | **3SU1900-0AF81-0DV0** | | 1 | 10 units | 41J |
| | | Open | -- | **3SU1900-0AF81-0DW0** | | 1 | 10 units | 41J |
| 3SU1900-0AF81-0QK0 | ***With symbol (ON/OFF)*** | | | | | | | |
| | Silver/black (label/lettering) | O | 5008 IEC | **3SU1900-0AF81-0QA0** | | 1 | 10 units | 41J |
| | | I | 5007 IEC | **3SU1900-0AF81-0QB0** | | 1 | 10 units | 41J |
| | | II | -- | **3SU1900-0AF81-0QC0** | | 1 | 10 units | 41J |
| | | III | -- | **3SU1900-0AF81-0QD0** | | 1 | 10 units | 41J |
| | | O I | -- | **3SU1900-0AF81-0QG0** | | 1 | 10 units | 41J |
| | | I O II | -- | **3SU1900-0AF81-0QK0** | | 1 | 10 units | 41J |
| | | I<br>O<br>(below each other) | -- | **3SU1900-0AF81-0QP0** | | 1 | 10 units | 41J |
| | | II<br>O<br>I<br>(below each other) | -- | **3SU1900-0AF81-0QQ0** | | 1 | 10 units | 41J |
|  3SU1900-0AF81-0QR0 | ***With symbol (graphic)*** | | | | | | | |
| | Silver/black (label/lettering) | → | ARROW DIRECTION TO RIGHT 5022 IEC | **3SU1900-0AF81-0QR0** | | 1 | 10 units | 41J |



* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Options

### *Customized inscriptions*

The labels can be inscribed with text and symbols not listed in the ordering data.

The default typeface used for inscriptions with text is Arial and the text is centered.

The font height is 4 mm (1- and 2-line) and 3.5 mm (3-line).

Up to 8 characters per line are possible.

Examples of customized inscriptions

Two-line inscription in upper/lower case (Q0Y)

Single-line inscription in upper case (Q1Y)

Backing plate for enclosures, customized inscription (Q2Y)

Symbol number 5011 according to IEC 60417 (Q3Y)

Any symbol according to order form supplement (Q9Y)

### *Ordering notes*

Append the following order codes to the article number:

- **Q0Y:** Text line(s) in upper/lower case, always upper case for beginning of line,
  e.g. Z1=Lift Z2=Lower
- **Q1Y:** Text line(s) in upper case,
  e.g. Z1=LIFT Z2=LOWER
- **Q2Y:** Text line(s) in lower case,
  e.g. Z1=lift off Z2=lower off
- **Q5Y:** Text line(s) in upper/lower case, all words begin with upper case letters,
  e.g. Z1=Lift Off Z2=Lower Off
- **Q3Y:** Symbol with number according to ISO 7000 or IEC 60417
- **Q9Y:** Inscription of choice, text or symbol, can only be ordered via SIRIUS ACT configurator with a Configuration Identification Number (CIN)

When ordering, specify the required inscription without umlauts (ä, ö, ü) and without spaces after Z=, Z1=, etc. in addition to the article number and order code (see ordering examples 1 to 3).

In the case of multi-line inscriptions, the text must be assigned to the respective line,
e.g. Z1=LIFT Z2=LOWER (see ordering example 1).

Symbols can also be ordered with numbers according to ISO 7000 or IEC 60417 (see ordering examples 2 and 3).

The SIRIUS ACT configurator must be used to select special inscriptions and symbols (see ordering example 4). In this case, a CIN (Configuration Identification Number) is generated for placement of future orders. It is then possible to place an order directly via the SIRIUS ACT configurator using the CIN (Mall shopping cart) or via the standard ordering channels.

Standard ordering channels:

- Configurator: www.siemens.com/sirius-act/configurator
- Industry Mall: www.siemens.com/industrymall

Ordering example 1

A label with 2 lines of text is required:

**3SU1900-0AF16-0AZ0**
**Q1Y**
Z1=LIFT
Z2=LOWER

Ordering example 2

A label inscribed with symbol No. 5011 according to IEC 60417 is required:

**3SU1900-0AF16-0AZ0**
**Q3Y**
Z=5011 IEC

Ordering example 3

A label inscribed with symbol No. 1118 according to ISO 7000 is required:

**3SU1900-0AF16-0AZ0**
**Q3Y**
Z=1118 ISO

Ordering example 4

A label with customized inscription is required:

**3SU1900-0AF16-0AZ0**
**Q9Y**
CIN.....
(20-digit number generated from the SIRIUS ACT configurator)

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## Overview

**More information**

Label Designer software, see www.siemens.com/sirius-label-designer

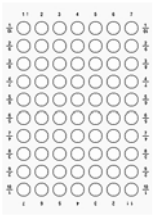
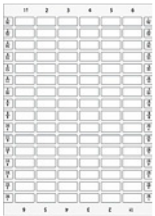
### *Label inscriptions*

Using the *Label Designer* software, which can be downloaded from the internet, and the labeling plates for laser inscription you can create your own customized labels with a standard laser printer. The self-adhesive or snap-on labels can be stuck or snapped onto the corresponding label holders. Round labels are provided for inserting in illuminated pushbuttons and switches.

The labels are suitable for inscription with one to three lines of text or symbols.

For applications with more exacting requirements we recommend factory-printed labeling plates and insert labels (laser-printed or engraved depending on the type).

## Selection and ordering data

| | Mounting type | Height | Width | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | mm | mm | | | | | |
| **Labels for printing – insert labels** | | | | | | | | |
|  3SU1900-0BH60-0AA0 | Insert | -- | -- | **3SU1900-0BH60-0AA0** | | 100 | 490 units | 41J |
| **Labels for printing – labeling plates** | | | | | | | | |
|  3SU1900-0BJ61-0AA0 | Self-adhesive | 12.5 | 27.5 | **3SU1900-0BJ61-0AA0** | | 100 | 480 units | 41J |
| | | 17.5 | 27 | **3SU1900-0BK61-0AA0** | | 100 | 720 units | 41J |
| | | 27 | 27 | **3SU1900-0BL61-0AA0** | | 100 | 480 units | 41J |
| | | 22 | 22 | **3SU1900-0BM61-0AA0** | | 100 | 700 units | 41J |

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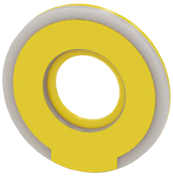
## Selection and ordering data

Multi-unit packaging, see page 13/17.

| Color | Mounting diameter | Mounting type | Outer diameter | Marking | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| | mm | | mm | | | | | | |
| **EMERGENCY STOP backing plates (2 mm thick)** | | | | | | | | | |
| 3SU1900-0BB31-0AT0 | | | | | | | | | |
| Yellow/black (label/lettering) | 22 | None | 45 | None | **3SU1900-0BA31-0AA0** | | 1 | 10 units | 41J |
| | | | | EMERGENCY OFF (Polish) | **3SU1900-0BA31-0ND0** | | 1 | 10 units | 41J |
| | | | 60 | NOT-HALT, EMERGENCY STOP, ARRÊT D'URGENCE, EMERGENZA (German, English, French, Italian) | **3SU1900-0BN31-0NC0** | | 1 | 10 units | 41J |
| | | | 75 | None | **3SU1900-0BB31-0AA0** | | 1 | 10 units | 41J |
| | | | | NOT-AUS | **3SU1900-0BB31-0AS0** | | 1 | 10 units | 41J |
| | | | | NOT-HALT | **3SU1900-0BB31-0AT0** | | 1 | 10 units | 41J |
| | | | | EMERGENCY STOP | **3SU1900-0DA0** | | 1 | 10 units | 41J |
| | | | | EMERGENCY OFF (Polish) | **3SU1900-0BB31-0ND0** | | 1 | 10 units | 41J |
| ***With customized inscription*** | | | | | | | | | |
| Yellow/black (label/lettering) | 22 | None | 45 | Inscriptions or symbols, see "Options", page 13/126. | **3SU1900-0BA31-0AZ0** | | 1 | 10 units | 41J |
| | | | 75 | | **3SU1900-0BB31-0AZ0** | | 1 | 10 units | 41J |
| **EMERGENCY STOP backing plates (5 mm thick), illuminated (24 V AC/DC)** | | | | | | | | | |
|  3SU1901-0BD31-0AA0 | | | | | | | | | |
| Yellow/black (label/lettering) | 22 | Self-adhesive | 60 | None | **3SU1901-0BD31-0AA0** | | 1 | 1 unit | 41J |
| | | | | NOT-AUS | **3SU1901-0BD31-0AS0** | | 1 | 1 unit | 41J |
| | | | | NOT-HALT | **3SU1901-0BD31-0AT0** | | 1 | 1 unit | 41J |
| | | | | EMERGENCY STOP | **3SU1901-0BD31-0DA0** | | 1 | 1 unit | 41J |
| | | | | NOT-HALT, EMERGENCY STOP, EMERGENZA, EMERGENCIA (German, English, Italian, Spanish) | **3SU1901-0BD31-0NB0** | | 1 | 1 unit | 41J |
| ***With customized inscription*** | | | | | | | | | |
| Yellow/black (label/lettering) | 22 | None | 60 | Inscriptions or symbols, see "Options", page 13/126. | **3SU1901-0BD31-0AZ0** | | 1 | 1 unit | 41J |
| **EMERGENCY STOP backing plates (0.3 mm thick)** | | | | | | | | | |
| 3SU1900-0BC31-0NB0 | | | | | | | | | |
| Yellow/black (label/lettering) | 22 | Self-adhesive | 75 | None | **3SU1900-0BC31-0AA0** | | 1 | 10 units | 41J |
| | | | | NOT-AUS | **3SU1900-0BC31-0AS0** | | 1 | 10 units | 41J |
| | | | | NOT-HALT | **3SU1900-0BC31-0AT0** | | 1 | 10 units | 41J |
| | | | | EMERGENCY STOP | **3SU1900-0BC31-0DA0** | | 1 | 10 units | 41J |
| | | | | ARRÊT D'URGENCE | **3SU1900-0BC31-0GQ0** | | 1 | 10 units | 41J |
| | | | | EMERGENZA | **3SU1900-0BC31-0JA0** | | 1 | 10 units | 41J |
| | | | | Nodstop | **3SU1900-0BC31-0LA0** | | 1 | 10 units | 41J |
| | | | | EMERGENCY OFF (Chinese) | **3SU1900-0BC31-0MA0** | | 1 | 10 units | 41J |
| | | | | NOT-HALT, EMERGENCY STOP, EMERGENZA, EMERGENCIA (German, English, Italian, Spanish) | **3SU1900-0BC31-0NB0** | | 1 | 10 units | 41J |
| ***With customized inscription*** | | | | | | | | | |
| Yellow/black (label/lettering) | 22 | Self-adhesive | 75 | Inscriptions or symbols, see "Options", page 13/126. | **3SU1900-0BC31-0AZ0** | | 1 | 1 unit | 41J |
| **Labeling plates (1.2 mm thick) for potentiometers** | | | | | | | | | |
| 3SU1900-0BG16-0RU0 | | | | | | | | | |
| Black/white (label/lettering) | 22 | None | 40 | -- | **3SU1900-0BG16-0AA0** | | 1 | 10 units | 41J |
| | | | | SYMBOL: 0 ... 9 | **3SU1900-0BG16-0RT0** | | 1 | 10 units | 41J |
| | | | | SYMBOL: 0 … 10 | **3SU1900-0BG16-0SA0** | | 1 | 10 units | 41J |
| | | | | SYMBOL: Power up | **3SU1900-0BG16-0RU0** | | 1 | 10 units | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Color | Mounting diameter | Label fastening method | Height | Width | Marking | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | mm | | mm | mm | | | | | | |
| **Labeling plates (0.3 mm thick) for enclosures with EMERGENCY STOP without recess** | | | | | | | | | | | |
| 3SU1900-0BE31-0AS0 | Yellow/black (label/lettering) | 22 | Self-adhesive | 38 | 112 | None<br>NOT-AUS<br>NOT-HALT | **3SU1900-0BE31-0AA0**<br>**3SU1900-0BE31-0AS0**<br>**3SU1900-0BE31-0AT0** | | 1<br>1<br>1 | 10 units<br>10 units<br>10 units | 41J<br>41J<br>41J |
| **Labeling plates (0.3 mm thick) for enclosures with EMERGENCY STOP with recess** | | | | | | | | | | | |
|  3SU1900-0BF31-0AA0 | Yellow/black (label/lettering) | 22 | Self-adhesive | 38 | 112 | None | **3SU1900-0BF31-0AA0** | | 1 | 10 units | 41J |
| **Device labeling plates for modules with front-plate mounting** | | | | | | | | | | | |
|  3SU1900-0AY61-0AA0 | White/black (label/lettering) | 22 | Insert | 9.5 | 10.5 | None | **3SU1900-0AY61-0AA0** | | 100 | 10 units | 41J |

13

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## Options

### *Customized inscriptions*

The labels can be inscribed with text and symbols not listed in the ordering data.

The EMERGENCY STOP backing plates can be divided into as many as four radial segments. Each segment can be custom-labeled.

The default typeface used for inscriptions with text is Arial and the text is centered.

EMERGENCY STOP backing plate 75 mm:

The font height is 5 mm.
With two radial segments, up to 20 characters are permissible.
With four radial segments, up to 10 characters are permissible.

EMERGENCY STOP backing plate 60 mm:

The font height is 4 mm.
With two radial segments, up to 16 characters are permissible.
With four radial segments, up to 8 characters are permissible.

EMERGENCY STOP backing plate 45 mm:

The font height is 4 mm.
With two radial segments, up to 10 characters are permissible.

### *Ordering notes*

Append the following order codes to the article number:

- **Q0Y:** Segment(s) in upper/lower case, always upper case for beginning of segment, e.g. Z1=Not halt Z2=Emergency stop
- **Q1Y:** Segment(s) in upper case, e.g. Z1=NOT HALT Z2=EMERGENCY STOP
- **Q2Y:** Segment(s) in lower case, e.g. Z1=not halt Z2=emergency stop
- **Q5Y:** Segment(s) in upper/lower case, all words begin with upper case letters, e.g. Z1=Not Halt Z2=Emergency Stop
- **Q3Y:** Symbol with number according to ISO 7000 or IEC 60417
- **Q9Y:** Inscription of choice, text or symbol, can only be ordered via SIRIUS ACT configurator with a Configuration Identification Number (CIN)

When ordering, specify the required inscription without umlauts (ä, ö, ü) and without spaces after Z=, Z1 =, etc. in addition to the article number and order code (see ordering examples 1 to 4).

Symbols can also be ordered with numbers according to ISO 7000 or IEC 60417 (see ordering examples 2 and 3).

The SIRIUS ACT configurator must be used to select special inscriptions and symbols (see ordering example 5). In this case, a CIN (Configuration Identification Number) is generated for placement of future orders. It is then possible to place an order directly via the SIRIUS ACT configurator using the CIN (Mall shopping cart) or via the standard ordering channels.

Standard ordering channels:

- Configurator: www.siemens.com/sirius-act/configurator
- Industry Mall: www.siemens.com/industrymall

With ordering options Q0Y, Q1Y, Q2Y, Q3Y and Q5Y, a single-line inscription of two or four radial segments can be implemented. The text or symbol must be assigned to the respective radial segments as follows:

Ordering example 1, two radial segments

An EMERGENCY STOP backing plate,
diameter 75 mm, with two radial segments is required

**3SU1900-0BB31-0AZ0**
**Q1Y**
Z1=NOT
Z2=HALT

Ordering example 2, four radial segments

An EMERGENCY STOP backing plate,
diameter 75 mm, with four radial segments is required

**3SU1900-0BB31-0AZ0**
**Q1Y**
Z1=E-STOP
Z2=EMERGENCIA
Z3=NOT-HALT
Z4=EMERGENZA

Ordering example 3

An EMERGENCY STOP backing plate,
diameter 75 mm, with symbol No. 5011 according to IEC 60417 is required:

**3SU1900-0BB31-0AZ0**
**Q3Y**
Z=5011 IEC

Ordering example 4

An EMERGENCY STOP backing plate,
diameter 75 mm, with symbol No. 1118 according to ISO 7000 is required:

**3SU1900-0BB31-0AZ0**
**Q3Y**
Z=1118 ISO

Ordering example 5

An EMERGENCY STOP backing plate,
diameter 75 mm, with customized inscription is required:

**3SU1900-0BB31-0AZ0**
**Q9Y**
CIN.....
(20-digit number generated from the SIRIUS ACT configurator)

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## Overview

Protection and access protection are suitable for actuators and indicators with diameters 22 mm and 30 mm.

The protective collars cannot be used in conjunction with label holders or single frames.

## Selection and ordering data

| | Product designation<br>Product version | Mounting diameter<br>mm | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Protective caps** | | | | | | | | | |
| <br>3SU1900-0DA10-0AA0 | **Sealable cap for pushbuttons, flat** | 22 | Plastic | Black<br>Clear | **3SU1900-0DA10-0AA0**<br>**3SU1900-0DA70-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| <br>3SU1900-0EL70-0AA0 | **Sealable caps**<br>for<br>• Pushbuttons, raised<br>• Pushbuttons with front ring, raised<br>• Pushbuttons with front ring, raised, castellated | 22 | Plastic | Black<br>Clear | **3SU1900-0EL10-0AA0**<br>**3SU1900-0EL70-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| <br>3SU1960-0DA70-0AA0 | **Sealable cap for pushbuttons, flat** | 30 | Plastic | Clear | **3SU1960-0DA70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1960-0EY70-0AA0 | **Sealable caps for selector switches, short** | 30 | Plastic | Clear | **3SU1960-0EY70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1900-0DB70-0AA0 | **Silicone protective caps for pushbuttons, flat** | 22 | Plastic | Clear | **3SU1900-0DB70-0AA0** | | 1 | 5 units | 41J |

13

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Protection/Access protection

| | Product designation<br>Product version | Mounting diameter<br>mm | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Protective caps** | | | | | | | | | |
| 3SU1900-0ED70-0AA0 | **Silicone-free protective caps for pushbuttons, flat** | 22 | Plastic | Clear | **3SU1900-0ED70-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0DC70-0AA0 | **Silicone protective caps for pushbuttons, raised** | 22 | Plastic | Clear | **3SU1900-0DC70-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0EE70-0AA0 | **Silicone-free protective caps for pushbuttons, raised** | 22 | Plastic | Clear | **3SU1900-0EE70-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0DD70-0AA0 | **Silicone protective caps for selectors, short** | 22 | Plastic | Clear | **3SU1900-0DD70-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0EF70-0AA0 | **Silicone-free protective caps for selectors, short** | 22 | Plastic | Clear | **3SU1900-0EF70-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0DE70-0AA0 | **Silicone protective caps for mushroom pushbuttons, 40 mm** | 22 | Plastic | Clear | **3SU1900-0DE70-0AA0** | | 1 | 1 unit | 41J |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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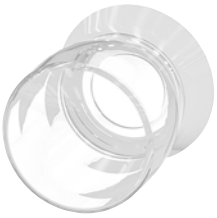
**Multi-unit packaging, see page 13/17.**

| Product designation<br>Product version | Mounting diameter<br>mm | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Protective caps** | | | | | | | | |
| <br>3SU1900-0EG70-0AA0 **Silicone-free protective caps for mushroom pushbuttons, 40 mm** | 22 | Plastic | Clear | **3SU1900-0EG70-0AA0** | | 1 | 1 unit | 41J |
| **Silicone protective caps for EMERGENCY STOP, 30 mm** | 22 | Plastic | Clear | **3SU1900-0EN70-0AA0** | | 1 | 1 unit | 41J |
|  <br>3SU1900-0DF70-0AA0 **Silicone protective caps for EMERGENCY STOP, 40 mm** | 22 | Plastic | Clear | **3SU1900-0DF70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1900-0DG70-0AA0 **Silicone protective caps for twin pushbuttons, flat** | 22 | Plastic | Clear | **3SU1900-0DG70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1900-0DH70-0AA0 **Silicone protective caps for twin pushbuttons, raised** | 22 | Plastic | Clear | **3SU1900-0DH70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1900-0EK70-0AA0 **Silicone-free protective caps for twin pushbuttons, raised** | 22 | Plastic | Clear | **3SU1900-0EK70-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1900-0EB10-0AA0 **Dust caps for key-operated switches** For Siemens[1], BKS, RONIS and O.M.R. | 22 | Plastic | Clear | **3SU1900-0EB10-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1900-0EM70-0AA0 **Dust caps for ID key-operated switches** | 22 | Plastic | Clear | **3SU1900-0EM70-0AA0** | | 1 | 1 unit | 41J |

[1] Siemens lock (compatible with CES locks).

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## Protection/Access protection

| | Product designation<br>Product version | Mounting diameter<br>mm | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Protective collars** | | | | | | | | | |
| 3SU1900-0DJ10-0AA0 | **Sun collars for illuminated pushbuttons** | 22 | Plastic | Black | **3SU1900-0DJ10-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0DW10-0AA0 | **360° protective collars for pushbuttons and selectors, short** | 22 | Plastic | Black | **3SU1900-0DW10-0AA0** | | 1 | 1 unit | 41J |
| 3SU1950-0DK80-0AA0 | **360° protective collars for pushbuttons**<br>Visibility from the side | 22 | Metal | Silver | **3SU1950-0DK80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1950-0DL80-0AA0 | **360° protective collar for mushroom pushbuttons**<br>40 mm,<br>visibility from the side | 22 | Metal | Silver | **3SU1950-0DL80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1900-0DY30-0AA0 | **Protective collars for EMERGENCY STOP mushroom pushbuttons**<br>Without lock or<br>with RONIS lock | 22 | Plastic | Yellow<br>Gray | **3SU1900-0DY30-0AA0**<br>**3SU1900-0DY80-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**Multi-unit packaging, see page 13/17.**

| Product designation<br>Product version | Mounting diameter<br>mm | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Protective collars** | | | | | | | | |
| <br>3SU1900-0JH30-0AA0 | | | | | | | | |
| **Protective collars for EMERGENCY STOP mushroom pushbuttons**<br>30 and 40 mm,<br>can be mounted in the top position | 22 | Plastic | Yellow | **3SU1900-0JH30-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1950-0DX30-0AA0 | | | | | | | | |
| **Protective collars for EMERGENCY STOP mushroom pushbuttons**<br>Without lock or with RONIS lock,<br>40 mm,<br>for 5 padlocks | 22 | Metal | Yellow<br>Gray | **3SU1950-0DX30-0AA0**<br>**3SU1950-0DX80-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| **Protective collars for EMERGENCY STOP mushroom pushbuttons**<br>60 mm,<br>for 3 padlocks | 22 | Plastic | Yellow | **3SU1900-0EX30-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1900-0EA30-0AA0 | | | | | | | | |
| **360° protective collars**<br>for<br>• Mushroom pushbuttons (30, 40 and 60 mm)<br>• EMERGENCY STOP mushroom pushbuttons without lock (40 and 60 mm)<br>• EMERGENCY STOP mushroom pushbuttons with RONIS lock (40 mm) | 22 | Plastic | Yellow | **3SU1900-0EA30-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1900-0EC10-0AA0 | | | | | | | | |
| **Protection for sensor switches** | 22 | Plastic | Black | **3SU1900-0EC10-0AA0** | | 1 | 1 unit | 41J |

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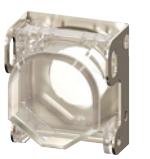
## Protection/Access protection

| | Product version | Mounting diameter mm | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **Locking devices** | | | | | | | | | |
| 3SU1950-0DM80-0AA0 | **Locking devices for pushbuttons** Flat, for raised front ring and raised, castellated front ring | 22 | Metal | Silver | **3SU1950-0DM80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1950-0DN80-0AA0 | **Locking devices for pushbuttons** Raised | 22 | Metal | Silver | **3SU1950-0DN80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1950-0DP80-0AA0 | **Locking devices for mushroom pushbuttons D30, D40** | 22 | Metal | Silver | **3SU1950-0DP80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1950-0DQ80-0AA0 | **Locking devices for selectors** Short/long actuator, in the left position | 22 | Metal | Silver | **3SU1950-0DQ80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1950-0DR80-0AA0 | **Locking devices for selectors** Short/long actuator, in the center position | 22 | Metal | Silver | **3SU1950-0DR80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1950-0DS80-0AA0 | **Locking devices for selectors** Short/long actuator, in the right position | 22 | Metal | Silver | **3SU1950-0DS80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1950-0DT80-0AA0 | **Locking devices for selectors** Short/long actuator, window from center to right, blocked on left | 22 | Metal | Silver | **3SU1950-0DT80-0AA0** | | 1 | 1 unit | 41J |
| 3SU1950-0DU80-0AA0 | **Locking devices for selectors** Short/long actuator, window from center to left, blocked on right | 22 | Metal | Silver | **3SU1950-0DU80-0AA0** | | 1 | 1 unit | 41J |
|  3SU1950-0DV80-0AA0 | **Locking device with cover** | 22 | Metal | Silver | **3SU1950-0DV80-0AA0** | | 1 | 1 unit | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

**Multi-unit packaging, see page 13/17.**

### Sealing plugs[1)]

| Mounting diameter | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| mm | | | | | | | |
| 22 | Plastic | Black | **3SU1900-0FA10-0AA0** | | 1 | 5 units | 41J |
| | Metal, shiny | Silver | **3SU1950-0FA80-0AA0** | | 1 | 5 units | 41J |
| 30 | Metal, matte | Sand gray | **3SU1960-0FA80-0AA0** | | 1 | 1 unit | 41J |

3SU1900-0FA10-0AA0

3SU1950-0FA80-0AA0

[1)] The sealing plug is mounted with a holder.
Modules might already be mounted on the holder.

### USB connections

| Product version | Mounting diameter | Accessory material | Accessory color | Screw terminals Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | mm | | | | | | | |
| USB 3.0 | 22 | Plastic | Black | **3SU1900-0GA10-0AA0** | | 1 | 1 unit | 41J |
| | | Metal, shiny | Silver | **3SU1950-0GA80-0AA0** | | 1 | 1 unit | 41J |
| | 30 | Metal, matte | Sand gray | **3SU1960-0GA80-0AA0** | | 1 | 1 unit | 41J |

3SU1900-0GA10-0AA0

3SU1960-0GA80-0AA0

### RJ45 connections

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RJ-45 Cat. 5e | 22 | Plastic | Black | **3SU1900-0GB10-0AA0** | | 1 | 1 unit | 41J |
| | | Metal, shiny | Silver | **3SU1950-0GB80-0AA0** | | 1 | 1 unit | 41J |
| | 30 | Metal, matte | Sand gray | **3SU1960-0GB80-0AA0** | | 1 | 1 unit | 41J |

3SU1900-0GB10-0AA0

3SU1950-0GB80-0AA0

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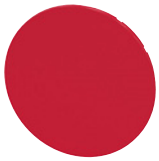
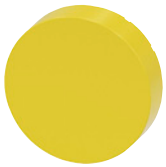
## Actuators

| | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Buttons, flat**[1] | | | | | | | |
|  3SU1900-0FT20-0AA0 | ***For pushbuttons*** | | | | | | |
| | Plastic | Black | **3SU1900-0FT10-0AA0** | | 100 | 10 units | 41J |
| | | Red | **3SU1900-0FT20-0AA0** | | 100 | 10 units | 41J |
| | | Yellow | **3SU1900-0FT30-0AA0** | | 100 | 10 units | 41J |
| | | Green | **3SU1900-0FT40-0AA0** | | 100 | 10 units | 41J |
| | | Blue | **3SU1900-0FT50-0AA0** | | 100 | 10 units | 41J |
| | | White | **3SU1900-0FT60-0AA0** | | 100 | 10 units | 41J |
| 3SU1901-0FT30-0AA0 | ***For illuminated pushbuttons*** | | | | | | |
| | Plastic | Amber | **3SU1901-0FT00-0AA0** | | 100 | 10 units | 41J |
| | | Red | **3SU1901-0FT20-0AA0** | | 100 | 10 units | 41J |
| | | Yellow | **3SU1901-0FT30-0AA0** | | 100 | 10 units | 41J |
| | | Green | **3SU1901-0FT40-0AA0** | | 100 | 10 units | 41J |
| | | Blue | **3SU1901-0FT50-0AA0** | | 100 | 10 units | 41J |
| | | White | **3SU1901-0FT60-0AA0** | | 100 | 10 units | 41J |
| | | Clear | **3SU1901-0FT70-0AA0** | | 100 | 10 units | 41J |
| **Buttons, raised**[1] | | | | | | | |
|  3SU1900-0FS30-0AA0 | ***For pushbuttons*** | | | | | | |
| | Plastic | Black | **3SU1900-0FS10-0AA0** | | 1 | 10 units | 41J |
| | | Red | **3SU1900-0FS20-0AA0** | | 1 | 10 units | 41J |
| | | Yellow | **3SU1900-0FS30-0AA0** | | 1 | 10 units | 41J |
| | | Green | **3SU1900-0FS40-0AA0** | | 1 | 10 units | 41J |
| 3SU1901-0FS40-0AA0 | ***For illuminated pushbuttons*** | | | | | | |
| | Plastic | Red | **3SU1901-0FS20-0AA0** | | 1 | 10 units | 41J |
| | | Yellow | **3SU1901-0FS30-0AA0** | | 1 | 10 units | 41J |
| | | Green | **3SU1901-0FS40-0AA0** | | 1 | 10 units | 41J |
| | | Blue | **3SU1901-0FS50-0AA0** | | 1 | 10 units | 41J |
| | | Clear | **3SU1901-0FS70-0AA0** | | 1 | 10 units | 41J |

[1] Buttons are not interchangeable between pushbuttons and illuminated pushbuttons with a raised front ring and with a raised, castellated front ring.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| | Material | Key number | Version of RFID coding | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|---|
| **RONIS keys** | | | | | | | | | |
| 3SU1950-0FB80-0AA0 | Metal | SB30[1]<br>455 | -- | Silver | **3SU1950-0FB80-0AA0**<br>**3SU1950-0FC80-0AA0** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| **BKS keys** | | | | | | | | | |
| 3SU1950-0FD80-0AA0 | Metal | S1[1] | -- | Silver | **3SU1950-0FD80-0AA0** | | 1 | 1 unit | 41J |
| **O.M.R. keys** | | | | | | | | | |
| 3SU1950-0FJ50-0AA0 | Metal | 73038<br>73037<br>73034<br>73033 | -- | Blue<br>Red<br>Black<br>Yellow | **3SU1950-0FJ50-0AA0**<br>**3SU1950-0FK20-0AA0**<br>**3SU1950-0FL10-0AA0**<br>**3SU1950-0FM30-0AA0** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J<br>41J |
| **Siemens keys[1]** | | | | | | | | | |
| 3SU1950-0FP80-0AA0 | Metal | LSG1<br>SSG10[2]<br>VL5 | -- | Silver | **3SU1950-0FN80-0AA0**<br>**3SU1950-0FP80-0AA0**<br>**3SU1950-0FQ80-0AA0** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| **ID keys ID group individual** | | | | | | | | | |
| 3SU1900-0FU60-0AA0 | Plastic | -- | Individually coded, programmable several times | White | **3SU1900-0FU60-0AA0** | | 1 | 1 unit | 41J |
| **ID keys** | | | | | | | | | |
| 3SU1900-0FV40-0AA0 | Plastic | -- | ID group 1<br>ID group 2<br>ID group 3<br>ID group 4 | Green<br>Yellow<br>Red<br>Blue | **3SU1900-0FV40-0AA0**<br>**3SU1900-0FW30-0AA0**<br>**3SU1900-0FX20-0AA0**<br>**3SU1900-0FY50-0AA0** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J<br>41J |

1) Siemens lock (compatible with CES locks).

2) Also available with special lock. Supplement the article number with **"-Z"** and the order code **"Y04"** and specify the required lock in plain text. Additional price on request.

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## Enclosures

### Overview

The accessories can be used for plastic and metal enclosures.

### Selection and ordering data

| | Product version | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Metric cable glands** | | | | | | | | |
| 3SU1900-0HG10-0AA0 | **M20 for round cable and enclosure** With 1 to 3 command points | Plastic | Black | **3SU1900-0HG10-0AA0** | | 1 | 1 unit | 41J |
| | **M25 for round cable and enclosure** With 4 and 6 command points | Plastic | Black | **3SU1900-0HH10-0AA0** | | 1 | 1 unit | 41J |
| | **M20 for round cable and AS-i enclosure** With 1 to 3 command points with 2-pole cable connector for AS-i module | Plastic | Black | **3SU1900-0JA10-0AA0** | | 1 | 1 unit | 41J |
| | **M25 for round cable and AS-i enclosure** With 4 and 6 command points with 2-pole plug-in connector for AS-i module | Plastic | Black | **3SU1900-0JB10-0AA0** | | 1 | 1 unit | 41J |
| | **M20 for round cable and IO-Link enclosure** With 1 to 3 command points with 10-pole plug-in connector for IO-Link | Plastic | Black | **3SU1900-0JC10-0AA0** | | 1 | 1 unit | 41J |
| | **M25 for round cable and IO-Link enclosure** With 4 and 6 command points with 10-pole plug-in connector for IO-Link | Plastic | Black | **3SU1900-0JD10-0AA0** | | 1 | 1 unit | 41J |
| | **M20 for AS-i shaped cable and AS-i enclosure** With 1 to 3 command points with 2-pole plug-in connector for AS-i module | Plastic | Black | **3SU1900-0HE10-0AA0** | | 1 | 1 unit | 41J |
| | **M25 for AS-i shaped cable and AS-i enclosure** With 4 and 6 command points with 2-pole plug-in connector for AS-i module | Plastic | Black | **3SU1900-0HF10-0AA0** | | 1 | 1 unit | 41J |
| **Connection pieces** | | | | | | | | |
| 3SU1900-0JQ10-0AA0 | **M20/M20, M20/M25, M25/M25 cable entry** For connecting two enclosures, plastic or metal | Plastic | Black | **3SU1900-0JQ10-0AA0** | | 1 | 1 unit | 41J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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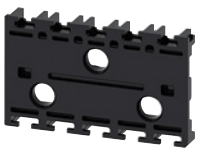
| | Product version | Material | Color | Insulation piercing method<br>Article No. | PU (UNIT, SET, M)<br>Price per PU | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Adapters for AS-i shaped cable** | | | | | | | |
| <br>3SU1900-0HX10-0AA0 | M20 cable entry | Plastic | Black | **3SU1900-0HX10-0AA0** | 1 | 1 unit | 41J |
| | M25 cable entry | Plastic | Black | **3SU1900-0HY10-0AA0** | 1 | 1 unit | 41J |
| **Adapters for tab connection** | | | | | | | |
| <br>3SU1900-0JJ10-0AA0 | **Adapter, M12 plug**<br>M20/M25 cable entry | | | | | | |
| | 4-pole | Plastic | Black | **3SU1900-0JJ10-0AA0** | 1 | 1 unit | 41J |
| | 5-pole | Plastic | Black | **3SU1900-0JK10-0AA0** | 1 | 1 unit | 41J |
| | 8-pole | Plastic | Black | **3SU1900-0JL10-0AA0** | 1 | 1 unit | 41J |
| <br>3SU1900-0JM10-0AA0 | **Adapter, M12 socket**<br>M20/M25 cable entry | | | | | | |
| | 4-pole | Plastic | Black | **3SU1900-0JM10-0AA0** | 1 | 1 unit | 41J |
| | 5-pole | Plastic | Black | **3SU1900-0JN10-0AA0** | 1 | 1 unit | 41J |
| | 8-pole | Plastic | Black | **3SU1900-0JP10-0AA0** | 1 | 1 unit | 41J |
| **Adapters for enclosures with 1 command point** | | | | | | | |
| <br>3SU1900-0JF10-0AA0 | Between enclosure top and lower part, for installation of 2-pole or two 1-pole contact modules with front plate mounting.<br>Not suitable for 3SU1801-1AA00-1AA1. | Plastic | Black | **3SU1900-0JF10-0AA0** | 1 | 1 unit | 41J |
| **Adapters for modules with base mounting** | | | | | | | |
|  <br>3SU1900-0JG10-0AA0 | Without fixing screws | Plastic | Black | **3SU1900-0JG10-0AA0** | 1 | 1 unit | 41J |
| **Enclosure cover monitoring**[1)] | | | | | | | |
| <br>3SU1900-0HM10-0AA0 | Module with extension plunger | Plastic | Black | **3SU1900-0HM10-0AA0** | 1 | 1 unit | 41J |

1) In addition, a 3SU1400-2AA10-.BA0 contact module is required.

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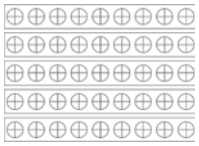
## Miscellaneous accessories

### Selection and ordering data

| | Product designation<br>Product version | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Miscellaneous accessories** | | | | | | | | |
| <br>3SU1900-0KA10-0AA0 | **PCB carriers** | Plastic | Black | **3SU1900-0KA10-0AA0** | | 100 | 10 units | 41J |
| <br>3SU1900-0KC10-0AA0 | **Pressure plates for selectors and locks** | Plastic | White | **3SU1900-0KC10-0AA0** | | 100 | 10 units | 41J |
|  <br>3SU1900-0KF10-0AA0 | **Drilling template for grid**<br>30 mm x 40 mm, horizontal | Plastic | Black | **3SU1900-0KF10-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1900-0KG10-0AA0 | **Extension plungers**<br>For compensation of the distance between the pushbutton and the resetting plunger of an overload relay | Plastic | Gray | **3SU1900-0KG10-0AA0** | | 1 | 1 unit | 41J |
| <br>3SU1950-0JE80-0AA0 | **Strut profile mounting adapters** | Metal | Sand gray | **3SU1950-0JE80-0AA0** | | 1 | 1 unit | 41J |
| <br>3RK1901-3QA00 | **Cable clip for cable adapters**<br>For enclosure with AS-Interface shaped cable | Plastic | Black | **3RK1901-3QA00** | | 100 | 10 units | 42C |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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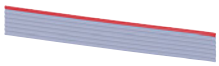
Multi-unit packaging, see page 13/17.

| Product designation<br>Product version | Material | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Miscellaneous accessories** | | | | | | | |
| <br>3SU1900-0KH80-0AA0 | **Adapters for DIN-rail mounting** | Plastic | Black | **3SU1900-0KH80-0AA0** | 1 | 1 unit | 41J |
| <br>3SU1950-0KJ80-0AA0 | **Adapters for actuators and indicators with 30 mm diameter**<br>With front ring for flat mounting | Metal | Silver | **3SU1950-0KJ80-0AA0** | 1 | 1 unit | 41J |
| <br>3SU1950-0KB10-0AA0 | **Adapters for 30.5 mm to 22.5 mm mounting hole** | Metal, shiny | Silver | **3SU1950-0KB10-0AA0** | 1 | 1 unit | 41J |
| | (for 22 mm range) | Metal, matte | Sand gray | **3SU1960-0KB10-0AA0** | 1 | 1 unit | 41J |
| <br>3SU1910-0KK80-0AA0 | **Grounding studs**<br>For grounding metal actuators for fitting in front plates made of non-conducting materials | | | | | | |
| | • For metal holders | Metal | Silver | **3SU1910-0KK80-0AA0** | 100 | 50 units | 41J |
| <br>3SU1950-0KK80-0AA0 | • For universal holders for plastic and metal | Metal | Silver | **3SU1950-0KK80-0AA0** | 100 | 50 units | 41J |
| <br>3SU1900-0KL10-0AA0 | **Plugs for sensor switches, angled socket with screw terminal connection** | Plastic | Black | **3SU1900-0KL10-0AA0** | 1 | 1 unit | 41J |
|  <br>3SU1900-0KP80-0AA0 | **Flat ribbon cable**<br>7 cores | | | | | | |
| | • Length 5 m | Plastic | Gray | **3SU1900-0KQ80-0AA0** | 1 | 1 unit | 41J |
| | • Length 10 m | Plastic | Gray | **3SU1900-0KP80-0AA0** | 1 | 1 unit | 41J |

13

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## General data

### Overview

**More information**

Industry Mall, see www.siemens.com/product?3SB2

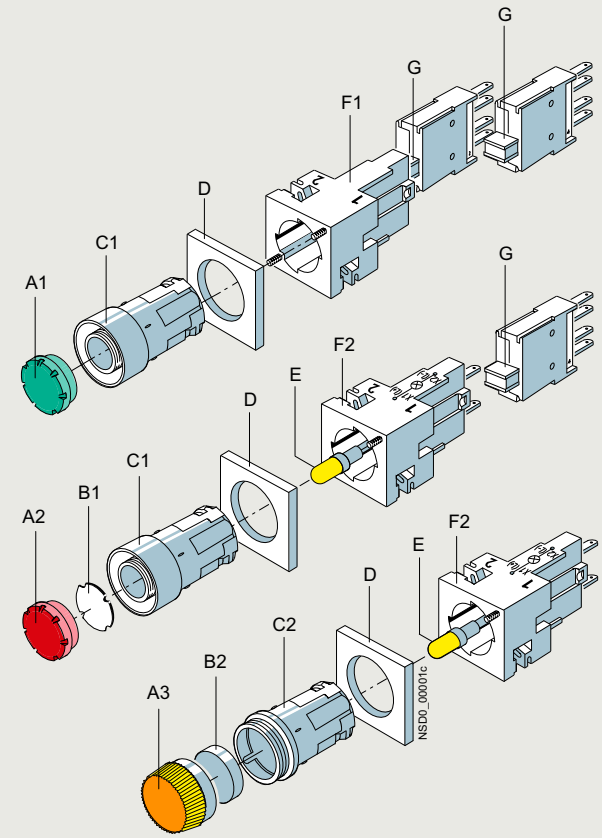
Configuration Manual, see https://support.industry.siemens.com/cs/ww/en/view/107194954

The 3SB2 pushbuttons and indicator lights are provided for front plate mounting and rear connection with flat connectors. For use on printed circuit boards, contact blocks and lampholders with solder pins are also available.

***Standards***

IEC 60947-1,
IEC 60947-5-1,
IEC 60947-5-5 for EMERGENCY STOP mushroom pushbuttons

***Version with flat connector***

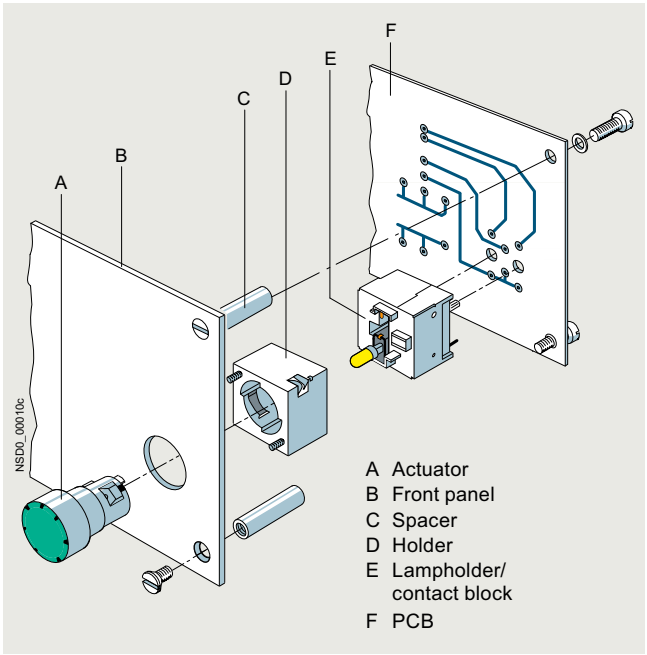



A1 Button, flat
A2 Illuminated button, flat
A3 Screw lens for indicator light
B1 Insert label, for labeling
B2 Insert cap, for labeling
C1 Collar with extruded front ring
C2 Collar for indicator light
D Frame for rectangular design
E Wedge base lamp, W2 x 4.6 d
F1 Holder
F2 Lampholder with holder
G Contact block (1 NO or 1 NC) for snapping onto the holder or onto the lampholder

3SB2 pushbuttons and indicator lights

***PCB mounting***

For use on printed circuit boards, special contact blocks and lampholders for soldering into the printed circuit board are available. For this purpose, the contact blocks and lampholders are fitted with 0.8 mm x 0.8 mm solder pins of length 3.5 mm.




3SB2 pushbuttons with solder pins

***Connection methods***

Flat connectors

Solder pin connections

The connection method is indicated in the corresponding tables by the respective symbol shown on orange backgrounds.

### Application

The devices are climate-proof and suitable for marine applications.

***Safety EMERGENCY STOP according to ISO 13850***

For controls according to IEC 60204-1, the mushroom push-buttons of the 3SB2 series are suitable for use as a safety EMERGENCY STOP.

***Safety circuits***

Standard IEC 60947-5-1 requires positive opening. This means that for the purpose of personal safety, the reliable opening of NC contacts in all safety circuits is expressly prescribed for the electrical equipment of machines and is designated according to IEC 60947-5-1 with the symbol ⊖.

PL e according to ISO 13849-1 can be attained with the EMERGENCY STOP mushroom pushbuttons if the corresponding fail-safe evaluation units are selected and correctly installed, e.g. the 3SK safety relays (see page 11/1 onwards) or matching units from the ASIsafe, SIMATIC or SINUMERIK product ranges.

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## Technical specifications

| Type | | 3SB2 |
|---|---|---|
| **Contact blocks and lampholders** | | |
| **Standards** | | IEC 60947-5-1<br>IEC 60947-5-5 |
| **Rated insulation voltage $U_i$** | V | 250 |
| **Conventional thermal current $I_{th}$** | A | 10 |
| **Rated operational currents $I_e$ at rated operational voltage $U_e$** | | |
| • Alternating current AC-12 | | |
| - At $U_e$ = 24 … 230 V | A | 10 |
| • Alternating current AC-15 | | |
| - At $U_e$ = 24 … 230 V | A | 4 |
| • Direct current DC-12 | | |
| - At $U_e$ = 24 V | A | 6 |
| - At $U_e$ = 60 V | A | 5 |
| - At $U_e$ = 110 V | A | 2.5 |
| - At $U_e$ = 230 V | A | 1 |
| • Direct current DC-13 | | |
| - At $U_e$ = 24 V | A | 3 |
| - At $U_e$ = 60 V | A | 1.5 |
| - At $U_e$ = 110 V | A | 0.7 |
| - At $U_e$ = 230 V | A | 0.3 |
| **Contact stability** | | |
| • Test voltage/test current | | 5 V/1 mA |
| **Lamps** | | |
| • Bases | | Wedge base W2 x 4.6 d |
| • Rated voltage | V | 6, 12, 24, 30, 48, 60 |
| • Rated power, max. | W | 1 |
| **Short-circuit protection** weld-free according to IEC 60947-5-1 | | |
| • DIAZED fuse links, utilization category gG | | 10 A TDz, 16 A Dz |
| • Miniature circuit breaker with C characteristic according to IEC 60898 | | 10 A |
| **Electrical endurance** | | |
| • For utilization category AC-15 with 3RT contactors | | 10 x $10^6$ operating cycles |
| **Mechanical endurance** | | 10 x $10^6$ operating cycles |
| **Degree of protection** according to IEC 60529 | | |
| • Connection of contact blocks and lampholders behind the front plate | | IP00 |
| • Contact chambers of the contact blocks behind the front plate | | IP40 |
| **Finger protection** according to IEC 60529 and DGUV Regulation 3 | | With voltages > 50 V AC or 120 V DC, insulating sleeves must be fitted to the unassigned flat connectors. |
| **Data according to UL and CSA** | | |
| **Rated voltage** | | |
| • Contact blocks | V | 250 AC |
| • Indicator lights (lamp with wedge base W2 × 4.6 d) | V | 60; 1 W |
| **Uninterrupted current** | A | 5 |
| **Switching capacity** | | B 300, R 300 |
| **Actuating and signaling elements** | | |
| **Mechanical endurance** | | |
| • Pushbuttons | | 10 x $10^6$ operating cycles |
| • Actuators, rotary or latching | | 3 x $10^5$ operating cycles |
| • Illuminated pushbuttons | | 3 x $10^6$ operating cycles |
| **Climatic withstand capability** | | Climate-proof; suitable for marine applications |
| **Ambient temperature** | | |
| • During operation, non-illuminated devices and complete with LED | °C | -25 … +70 |
| • During operation, devices with incandescent lamp | °C | -25 … +60 |
| • During storage, transport | °C | -40 ... +80 |
| **Degree of protection** according to IEC 60529 | | |
| • Actuators and indicators | | IP65 |
| • Actuators and indicators with protective cap | | IP67 |
| **Protective measures** | | |
| • For mounting in metal front plates and enclosures | | The actuators and lens assemblies must not be included in the protective measures. |
| • For fitting into enclosures with total insulation | | The protective measure "Total insulation" is retained. |
| **Shock resistance** according to IEC 60068-2-27 | | |
| • Shock amplitude | | ≤ 50 *g* |
| • Shock duration | ms | 11 |
| • Shock form | | Half-sine |

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## General data

### *Configuration*

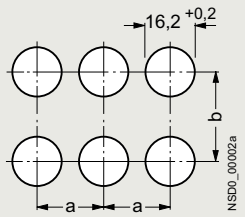
Design

Two design versions can be mounted:

- Round design: The 3SB2 pushbuttons and indicator lights consist of the actuator, holder, contact block and lampholders. Depending on the specific application, various versions can be assembled. Complete units are offered for the most commonly used applications.
- Square design: With square, black frames the round units can be given a square look. The frames are inserted underneath the round actuators. Further mounting is the same as for the round version.

Mounting and fixing:

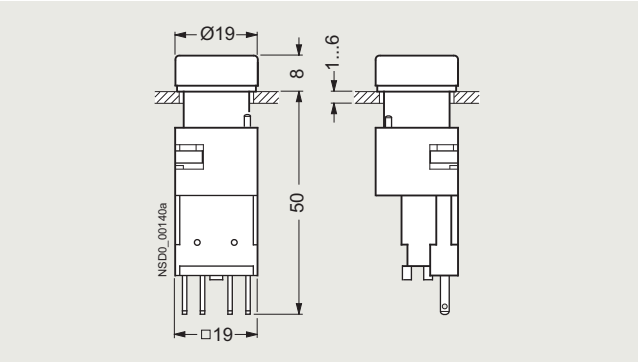
Mounting dimensions according to EN 50007
(does not apply to EMERGENCY STOP mushroom pushbuttons):




| Minimum clearance | a | b |
|---|---|---|
| Round design | 19 | 19 |
| Square design without labeling plate | 21 | 21 |
| Round and square design with labeling plate | 21 | 32 |
| For 2 selector switches and 3 switching positions, maintained contact, side by side | 21 | 21 |

For mounting, the actuator or the lens assembly is inserted from the front into the hole in the front plate. Four small nubs ensure a secure fitting in the hole. The holder is plugged on from the back and snaps automatically into place. The module is fixed to the holder with two screws so that it is immune to vibrations.

One or two contact blocks can be mounted on the holder. They are inserted into the holder with slide slots and held down with two snap brackets.




Pushbutton (flat) with holder and contact block

If a command point is fitted with an indicator light or illuminated pushbutton, a lamp socket with lampholder must be used instead of a holder. It is suitable for incandescent lamps or LEDs with bases of type W2 x 4.6 d.

PCB mounting

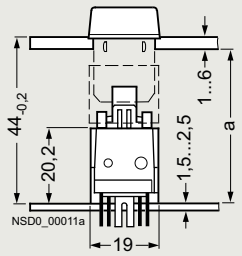
The command point comprises the actuator – e.g. 3SB2 pushbutton, illuminated pushbutton or indicator light –, which is mounted in the front plate, and a contact block and a lampholder which are soldered to the PCB. For this purpose, the contact blocks and lampholders are fitted with 0.8 mm x 0.8 mm solder pins of length 3.5 mm.

Mounting and fixing:

Mounting dimensions according to EN 50007

The actuators are mounted in the same way as 3SB2 front plate mounting devices.

The contact blocks and lampholders are plugged into the printed circuit board by means of their solder pins and can be flow-soldered. After soldering, the devices must be flush with the board and perpendicular to it. The printed circuit board must be supported on spacing bolts so that it cannot sag or bend more than 0.1 mm.




Length **a** of spacing bolts:
**a** = $44_{-0.2}$ minus front plate thickness.

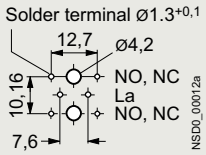
When using backing plates, the length **a** is reduced by 0.8 mm.

Illuminated pushbutton with solder pin connection

To avoid bending the PCB when the command device is operated, sufficient spacing bolts must be provided as shown in the table below:

| PCB thickness | Max. distance between spacing bolts |
|---|---|
| 1.5 mm | 80 mm |
| 2.5 mm | 150 mm |
| When using EMERGENCY STOP pushbuttons | Always 50 mm |

These details are based on epoxy resin glass fiber mat.




Solder pin spacing

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## Selection and ordering data

| Version | Contact blocks | Color of actuator | Flat connectors<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| <br>3SB2202-0AE01 | | | | | | | |
| **Pushbuttons with flat button** | 1 NO | Black | **3SB2202-0AB01** | | 1 | 1 unit | 41J |
| | 1 NC | Black | **3SB2203-0AB01** | | 1 | 1 unit | 41J |
| | 1 NC | Red | **3SB2203-0AC01** | | 1 | 1 unit | 41J |
| | 1 NO | Yellow | **3SB2202-0AD01** | | 1 | 1 unit | 41J |
| | 1 NO | Green | **3SB2202-0AE01** | | 1 | 1 unit | 41J |
| | 1 NO | Blue | **3SB2202-0AF01** | | 1 | 1 unit | 41J |
| | 1 NO | White | **3SB2202-0AG01** | | 1 | 1 unit | 41J |
| | 1 NO | Clear[1] | **3SB2202-0AH01** | | 1 | 1 unit | 41J |
| **Illuminated pushbuttons with flat button**<br>Lampholder W2 x 4.6 d without lamp[2] | 1 NC | Red | **3SB2207-0AC01** | | 1 | 1 unit | 41J |
| | 1 NO | Yellow[1] | **3SB2206-0AD01** | | 1 | 1 unit | 41J |
| | 1 NO | Green | **3SB2206-0AE01** | | 1 | 1 unit | 41J |
| | 1 NO | Blue | **3SB2206-0AF01** | | 1 | 1 unit | 41J |
| | 1 NO | Clear[1] | **3SB2206-0AH01** | | 1 | 1 unit | 41J |
| **Illuminated pushbuttons with flat button**<br>Lampholder W2 x 4.6 d with 24 V incandescent lamp | 1 NC | Red | **3SB2227-0AC01** | | 1 | 1 unit | 41J |
| | 1 NO | Yellow[1] | **3SB2226-0AD01** | | 1 | 1 unit | 41J |
| | 1 NO | Green | **3SB2226-0AE01** | | 1 | 1 unit | 41J |
| | 1 NO | Blue | **3SB2226-0AF01** | | 1 | 1 unit | 41J |
| | 1 NO | Clear[1] | **3SB2226-0AH01** | | 1 | 1 unit | 41J |
| <br>3SB2207-0LC01 | | | | | | | |
| **Pushbuttons with raised button** | 1 NO | Black | **3SB2202-0LB01** | | 1 | 1 unit | 41J |
| | 1 NC | Red | **3SB2203-0LC01** | | 1 | 1 unit | 41J |
| | 1 NO | Yellow | **3SB2202-0LD01** | | 1 | 1 unit | 41J |
| | 1 NO | Blue | **3SB2202-0LF01** | | 1 | 1 unit | 41J |
| | 1 NO | Clear[1] | **3SB2202-0LH01** | | 1 | 1 unit | 41J |
| **Illuminated pushbuttons with raised button**<br>Lampholder W2 x 4.6 d without lamp[2] | 1 NC | Red | **3SB2207-0LC01** | | 1 | 1 unit | 41J |
| | 1 NO | Yellow[1] | **3SB2206-0LD01** | | 1 | 1 unit | 41J |
| | 1 NO | Green | **3SB2206-0LE01** | | 1 | 1 unit | 41J |
| | 1 NO | Blue | **3SB2206-0LF01** | | 1 | 1 unit | 41J |
| | 1 NO | Clear[1] | **3SB2206-0LH01** | | 1 | 1 unit | 41J |
| **Illuminated pushbuttons with raised button**<br>Lampholder W2 x 4.6 d with 24 V incandescent lamp | 1 NC | Red | **3SB2227-0LC01** | | 1 | 1 unit | 41J |
| | 1 NO | Yellow[1] | **3SB2226-0LD01** | | 1 | 1 unit | 41J |
| | 1 NO | Green | **3SB2226-0LE01** | | 1 | 1 unit | 41J |
| | 1 NO | Blue | **3SB2226-0LF01** | | 1 | 1 unit | 41J |
| | 1 NO | Clear[1] | **3SB2226-0LH01** | | 1 | 1 unit | 41J |
| <br>3SB2203-1AC01 | | | | | | | |
| **EMERGENCY STOP mushroom pushbuttons according to ISO 13850, latching**[3]<br>Latch automatically when pressed; unlatch by turning the mushroom head counterclockwise, with yellow backing plate with inscription "NOT-HALT" | 1 NC ⊖ | Red | **3SB2203-1AC01** | | 1 | 1 unit | 41J |

⊖ Positive opening according to IEC 60947-5-1, Annex K. Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

1) Inscription with insert labels is possible.

2) Wedge base lamps, see "Accessories", page 13/154.

3) The mushroom pushbutton cannot be combined with 3SB2902-0AB backing plate or 3SB2902-0AA single frame.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Complete units

3SB2202-2AC01

| Version | Contact blocks | Color of actuator | Flat connectors Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Selectors, 2 switch positions** Switching sequence O-I, actuating angle 62°, latching | 1 NO | Black | **3SB2202-2AB01** | | 1 | 1 unit | 41J |
| | 1 NO | Red | **3SB2202-2AC01** | | 1 | 1 unit | 41J |
| | 1 NO | Green | **3SB2202-2AE01** | | 1 | 1 unit | 41J |
| | 1 NO | White | **3SB2202-2AG01** | | 1 | 1 unit | 41J |
| **Selectors, 3 switch positions** Switching sequence I-O-II, 2 × actuating angle 62°, latching | 1 NO, 1 NO | Black | **3SB2210-2DB01** | | 1 | 1 unit | 41J |
| | 1 NO, 1 NO | Red | **3SB2210-2DC01** | | 1 | 1 unit | 41J |
| | 1 NO, 1 NO | Green | **3SB2210-2DE01** | | 1 | 1 unit | 41J |
| | 1 NO, 1 NO | White | **3SB2210-2DG01** | | 1 | 1 unit | 41J |
| **Selectors, 3 switch positions** Switching sequence I-O-II, 2 × actuating angle 50°, momentary contact | 1 NO, 1 NO | Black | **3SB2210-2EB01** | | 1 | 1 unit | 41J |
| | 1 NO, 1 NO | Red | **3SB2210-2EC01** | | 1 | 1 unit | 41J |
| | 1 NO, 1 NO | Green | **3SB2210-2EE01** | | 1 | 1 unit | 41J |
| | 1 NO, 1 NO | White | **3SB2210-2EG01** | | 1 | 1 unit | 41J |

3SB2202-4LB01

| Version | Contact blocks | Lock No. | Key removal position | Flat connectors Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **CES key-operated switches[1], 2 switch positions** Switching sequence O-I, actuating angle 62°, latching | 1 NO | SB2 | O | **3SB2202-4LA01** | | 1 | 1 unit | 41J |
| | 1 NO | SB2 | O + I | **3SB2202-4LB01** | | 1 | 1 unit | 41J |
| **CES key-operated switches[1], 3 switch positions** Switching sequence I-O-II, 2 × actuating angle 62°, latching | 1 NO, 1 NO | SB2 | O | **3SB2210-4PA01** | | 1 | 1 unit | 41J |
| | 1 NO, 1 NO | SB2 | I + O + II | **3SB2210-4PB01** | | 1 | 1 unit | 41J |
| **CES key-operated switches[1], 3 switch positions** Switching sequence I-O-II, 2 × actuating angle 50°, momentary contact | 1 NO, 1 NO | SB2 | O | **3SB2210-4QA01** | | 1 | 1 unit | 41J |

[1] Also available with additional locking systems. The article number must be supplemented with **"-Z"**, the order code **"Y01"** and the required lock number.

3SB2224-6BE06

| Version | Color of screw lens | Flat connectors Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Indicator lights** Lampholder W2 x 4.6 d without lamp[1] | Red | **3SB2204-6BC06** | | 1 | 1 unit | 41J |
| | Yellow | **3SB2204-6BD06** | | 1 | 1 unit | 41J |
| | Green | **3SB2204-6BE06** | | 1 | 1 unit | 41J |
| | White | **3SB2204-6BG06** | | 1 | 1 unit | 41J |
| | Clear | **3SB2204-6BH06** | | 1 | 1 unit | 41J |
| **Indicator lights** Lampholder W2 x 4.6 d with 24 V incandescent lamp | Red | **3SB2224-6BC06** | | 1 | 1 unit | 41J |
| | Yellow | **3SB2224-6BD06** | | 1 | 1 unit | 41J |
| | Green | **3SB2224-6BE06** | | 1 | 1 unit | 41J |
| | White | **3SB2224-6BG06** | | 1 | 1 unit | 41J |
| | Clear | **3SB2224-6BH06** | | 1 | 1 unit | 41J |

[1] Wedge base lamps, see "Accessories", page 13/154.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Selection and ordering data

### Pushbuttons

| Version | Color of actuator | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| 3SB2000-0AF01 | | | | | | |
| **Pushbuttons with flat button** | Black | **3SB2000-0AB01** | | 1 | 1 unit | 41J |
| | Red | **3SB2000-0AC01** | | 1 | 1 unit | 41J |
| | Yellow | **3SB2000-0AD01** | | 1 | 1 unit | 41J |
| | Green | **3SB2000-0AE01** | | 1 | 1 unit | 41J |
| | Blue | **3SB2000-0AF01** | | 1 | 1 unit | 41J |
| | White | **3SB2000-0AG01** | | 1 | 1 unit | 41J |
| | Clear[1] | **3SB2000-0AH01** | | 1 | 1 unit | 41J |
| **Illuminated pushbuttons with flat button** | Red | **3SB2001-0AC01** | | 1 | 1 unit | 41J |
| | Yellow[1] | **3SB2001-0AD01** | | 1 | 1 unit | 41J |
| | Green | **3SB2001-0AE01** | | 1 | 1 unit | 41J |
| | Blue | **3SB2001-0AF01** | | 1 | 1 unit | 41J |
| | White | **3SB2000-0AG01** | | 1 | 1 unit | 41J |
| | Clear[1] | **3SB2000-0AH01** | | 1 | 1 unit | 41J |
| 3SB2000-0LF01 | | | | | | |
| **Pushbuttons with raised button** | Black | **3SB2000-0LB01** | | 1 | 1 unit | 41J |
| | Red | **3SB2000-0LC01** | | 1 | 1 unit | 41J |
| | Yellow | **3SB2000-0LD01** | | 1 | 1 unit | 41J |
| | Blue | **3SB2000-0LF01** | | 1 | 1 unit | 41J |
| | White | **3SB2000-0LG01** | | 1 | 1 unit | 41J |
| | Clear[1] | **3SB2000-0LH01** | | 1 | 1 unit | 41J |
| **Illuminated pushbuttons with raised button** | Red | **3SB2001-0LC01** | | 1 | 1 unit | 41J |
| | Yellow[1] | **3SB2001-0LD01** | | 1 | 1 unit | 41J |
| | Green | **3SB2001-0LE01** | | 1 | 1 unit | 41J |
| | Blue | **3SB2001-0LF01** | | 1 | 1 unit | 41J |
| | Clear[1] | **3SB2000-0LH01** | | 1 | 1 unit | 41J |
| 3SB2000-1AC01 | | | | | | |
| **EMERGENCY STOP mushroom pushbuttons according to ISO 13850, latching**[2] Latch automatically when pressed; unlatch by turning the mushroom head counterclockwise | Red | **3SB2000-1AC01** | | 1 | 1 unit | 41J |

[1] Inscription is possible by inserting a label.

[2] The mushroom pushbutton cannot be combined with 3SB2902-0AB backing plate or 3SB2902-0AA single frame.

### Selectors

| Version | | Color of actuator | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| 3SB2000-2AB01 | | | | | | | |
| **Selectors with 2 switch positions** Switching sequence O-I, actuating angle 62°, latching | | Black<br>Red<br>Green<br>White | **3SB2000-2AB01**<br>**3SB2000-2AC01**<br>**3SB2000-2AE01**<br>**3SB2000-2AG01** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J<br>41J |
| **Selectors with 2 switch positions** Switching sequence O-I, actuating angle 50°, momentary contact (reset from the right) | | Black<br>Red<br>Green | **3SB2000-2BB01**<br>**3SB2000-2BC01**<br>**3SB2000-2BE01** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| **Selectors with 2 switch positions** Switching sequence O-I, actuating angle 90°, latching | | Black<br>Red<br>Green<br>White | **3SB2000-2HB01**<br>**3SB2000-2HC01**<br>**3SB2000-2HE01**<br>**3SB2000-2HG01** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J<br>41J |
| **Selectors with 3 switch positions** Switching sequence I-O-II, actuating angle 2 x 62°, latching | | Black<br>Red<br>Green<br>White | **3SB2000-2DB01**<br>**3SB2000-2DC01**<br>**3SB2000-2DE01**<br>**3SB2000-2DG01** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J<br>41J |
| **Selectors with 3 switch positions** Switching sequence I-O-II, actuating angle 2 x 50°, momentary contact | | Black<br>Red<br>Green<br>White | **3SB2000-2EB01**<br>**3SB2000-2EC01**<br>**3SB2000-2EE01**<br>**3SB2000-2EG01** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J<br>41J |
| **Selectors with 3 switch positions** Switching sequence I-O-II, actuating angle 2 x 90°, latching | | Black | **3SB2000-2JB01** | | 1 | 1 unit | 41J |

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## Actuating and signaling elements

### Key-operated switches

3SB2000-4LB01

| Version | | Lock No. | Key removal position | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **CES key-operated switches[1] with 2 keys, 2 switch positions** Switching sequence O-I, actuating angle 62°, latching | | SB2 | O+I<br>O | **3SB2000-4LB01**<br>**3SB2000-4LA01** | | 1<br>1 | 1 unit<br>1 unit | 41J<br>41J |
| **CES key-operated switches[1] with 2 keys, 2 switch positions** Switching sequence O-I, actuating angle 50°, momentary contact | | SB2 | O | **3SB2000-4MA01** | | 1 | 1 unit | 41J |
| **CES key-operated switches[1] with 2 keys, 3 switch positions** Switching sequence I-O-II, actuating angle 2 x 62°, latching | | SB2 | I+O+II<br>O<br>I | **3SB2000-4PB01**<br>**3SB2000-4PA01**<br>**3SB2000-4PC01** | | 1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit | 41J<br>41J<br>41J |
| **CES key-operated switches[1] with 2 keys, 3 switch positions** Switching sequence I-O-II, actuating angle 2 x 50°, momentary contact | | SB2 | O | **3SB2000-4QA01** | | 1 | 1 unit | 41J |

[1] Also available with additional locking systems. The article number must be supplemented with **"-Z"**, the order code **"Y01"** and the required lock number.

### Indicator lights

3SB2001-6BD06

| Version | Color of screw lens | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Indicator lights with concentric rings** (Inscription with insert caps is not possible) | Red | **3SB2001-6BC06** | | 1 | 1 unit | 41J |
| | Yellow | **3SB2001-6BD06** | | 1 | 1 unit | 41J |
| | Green | **3SB2001-6BE06** | | 1 | 1 unit | 41J |
| | Blue | **3SB2001-6BF06** | | 1 | 1 unit | 41J |
| | White | **3SB2001-6BG06** | | 1 | 1 unit | 41J |
| | Clear | **3SB2001-6BH06** | | 1 | 1 unit | 41J |
| **Indicator lights, smooth** For inscription with insert caps[1] | Red | **3SB2001-6CC06** | | 1 | 1 unit | 41J |
| | Yellow | **3SB2001-6CD06** | | 1 | 1 unit | 41J |
| | Green | **3SB2001-6CE06** | | 1 | 1 unit | 41J |
| | Blue | **3SB2001-6CF06** | | 1 | 1 unit | 41J |
| | Clear | **3SB2001-6CH06** | | 1 | 1 unit | 41J |

[1] Insert caps, see "Accessories", page 13/151.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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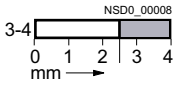
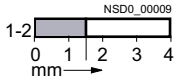
## Selection and ordering data

| Version | Graphic symbols | Operating travel<br>Contact closed<br>Contact open | Flat connectors<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Contact blocks and lampholders with flat connectors 2 × 2.8 - 0.8 mm according to IEC 60760** | | | | | | | |
| ***Holders for fixing the actuator and the contact blocks*** | | | | | | | |
| <br>3SB2908-0AA<br>**Holders for 2 contact blocks**<br>Inscription with identification number 1-2 | -- | -- | **3SB2908-0AA** | | 1 | 5 units | 41J |
| ***Lampholders with holder for fixing the actuator and the contact blocks*** | | | | | | | |
| <br>3SB2304-2A<br>**Lampholders**<br>W2 x 4.6 d<br>without lamp | X1 (L+) X2 (L-)<br>NSD0_00003 | -- | **3SB2304-2A** | | 1 | 1 unit | 41J |
| **Lampholders**<br>W2 x 4.6 d | X1 (L+) X2 (L-)<br>NSD0_00003 | -- | | | | | |
| • With 6 V incandescent lamp | | | **3SB2304-2F** | | 1 | 1 unit | 41J |
| • With 24 V incandescent lamp | | | **3SB2304-2H** | | 1 | 1 unit | 41J |
| ***Contact blocks for fixing in the holder or lampholder*** | | | | | | | |
| <br>3SB2404-0B<br>**Contact blocks with one contact**[1] | | | | | | | |
| 1 NO | |  | **3SB2404-0B** | | 1 | 1 unit | 41J |
| 1 NC ➔ | |  | **3SB2404-0C** | | 1 | 1 unit | 41J |

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

[1] Plug-in and insulating sleeves, see "Accessories", page 13/155.

13

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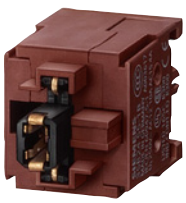
## Contact blocks and lampholders

| Version | Graphic symbols | Operating travel<br>Contact closed<br>Contact open | Solder pin connections<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Contact blocks and lampholders with solder pins** | | | | | | | |
| 3SB2908-0AB<br>**Holders for contact block with solder pins**<br>For mounting the actuators in the front panel | -- | -- | **3SB2908-0AB** | | 1 | 5 units | 41J |
| **Lampholders**<br>Wedge base W2 x 4.6 d[1] | (L+) X1<br>(L-) X2 | -- | **3SB2455-2A** | | 1 | 1 unit | 41J |
| **Contact blocks** | | | | | | | |
| 3SB2455-0B<br>1 NO | .3<br>.4 | NSD0_00015<br>3-4<br>0 1 2 3 4<br>mm<br>2,3 | **3SB2455-0B** | | 1 | 1 unit | 41J |
| 1 NC ➔ | .1<br>.2 | NSD0_00017<br>1-2<br>0 1 2 3 4<br>mm<br>1,6 | **3SB2455-0C** | | 1 | 1 unit | 41J |
| 1 NO + 1 NC ➔ | 13 21<br>14 22 | NSD0_00019<br>21-22<br>0 1 2 3 4<br>mm<br>1,6 | **3SB2455-0J** | | 1 | 1 unit | 41J |
| 1 NO + 1 NO | 13 23<br>14 24 | NSD0_00021<br>13-14<br>23-24<br>0 1 2 3 4<br>mm<br>2,3 | **3SB2455-0E** | | 1 | 1 unit | 41J |
| 1 NC + 1 NC ➔ | 11 21<br>12 22 | NSD0_00023<br>21-22<br>11-12<br>0 1 2 3 4<br>mm<br>1,6 | **3SB2455-0F** | | 1 | 1 unit | 41J |
| **Contact blocks and lampholders,** wedge base W2 x 4.6 d[1] | | | | | | | |
|  3SB2455-1B<br>1 NO | 13 X1<br>14 X2 | NSD0_01082<br>13-14<br>0 1 2 3 4<br>mm<br>2,3 | **3SB2455-1B** | | 1 | 1 unit | 41J |
| 1 NC ➔ | 21 X1<br>22 X2 | NSD0_01083<br>21-22<br>0 1 2 3 4<br>mm<br>1,6 | **3SB2455-1C** | | 1 | 1 unit | 41J |
| 1 NO + 1 NC ➔ | 13 21 X1<br>14 22 X2 | NSD0_00019<br>21-22<br>0 1 2 3 4<br>mm<br>1,6 | **3SB2455-1J** | | 1 | 1 unit | 41J |
| 1 NO + 1 NO | 13 23 X1<br>14 24 X2 | NSD0_00021<br>13-14<br>23-24<br>0 1 2 3 4<br>mm<br>2,3 | **3SB2455-1E** | | 1 | 1 unit | 41J |
| 1 NC + 1 NC ➔ | 11 21 X1<br>12 22 X2 | NSD0_00023<br>21-22<br>11-12<br>0 1 2 3 4<br>mm<br>1,6 | **3SB2455-1F** | | 1 | 1 unit | 41J |

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

[1] The lamp is not included in the scope of supply.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

Clear pushbuttons, illuminated pushbuttons and indicator lights can be fitted with insert labels and caps for identification purposes.

The insert labels and insert caps are made of a milky-transparent plastic with black lettering; they can be fitted in any 90° angle.

***Inscription***

The inscriptions have upper case initial letters. Graphic symbols, including those not listed in the catalog, are according to ISO 7000 or IEC 60417.

Customized inscriptions, see "Options", page 13/152.

## Selection and ordering data

| | Inscription/symbol | | Symbol No. | **Insert labels** For pushbuttons and illuminated pushbuttons, flat Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **For self-inscription** | | | | | | | | |
| 3SB2901-4AA | Blank | | -- | **3SB2901-4AA** | | 100 | 10 units | 41J |
| **With inscription** | | | | | | | | |
| 3SB2901-4AB | Ein | | -- | **3SB2901-4AB** | | 100 | 10 units | 41J |
| | Aus | | -- | **3SB2901-4AC** | | 100 | 10 units | 41J |
| | Auf | | -- | **3SB2901-4AD** | | 100 | 10 units | 41J |
| | Ab | | -- | **3SB2901-4AE** | | 100 | 10 units | 41J |
| | Vor | | -- | **3SB2901-4AF** | | 100 | 10 units | 41J |
| | Zurück | | -- | **3SB2901-4AG** | | 100 | 10 units | 41J |
| | Rechts | | -- | **3SB2901-4AH** | | 100 | 10 units | 41J |
| | Links | | -- | **3SB2901-4AJ** | | 100 | 10 units | 41J |
| | Halt | | -- | **3SB2901-4AK** | | 100 | 10 units | 41J |
| | Zu | | -- | **3SB2901-4AL** | | 100 | 10 units | 41J |
| | Langsam | | -- | **3SB2901-4AN** | | 100 | 10 units | 41J |
| | Störung | | -- | **3SB2901-4AQ** | | 100 | 10 units | 41J |
| 3SB2901-4EB | On | | -- | **3SB2901-4EB** | | 100 | 10 units | 41J |
| | Start | | -- | **3SB2901-4EK** | | 100 | 10 units | 41J |
| | Stop | | -- | **3SB2901-4EL** | | 100 | 10 units | 41J |
| | Reset | | -- | **3SB2901-4EM** | | 100 | 10 units | 41J |
| | Test | | -- | **3SB2901-4EN** | | 100 | 10 units | 41J |
| | 0 | | -- | **3SB2901-4RA** | | 100 | 10 units | 41J |
| | 1 | | -- | **3SB2901-4RB** | | 100 | 10 units | 41J |
| | 2 | | -- | **3SB2901-4RC** | | 100 | 10 units | 41J |
| | 3 | | -- | **3SB2901-4RD** | | 100 | 10 units | 41J |
| | 4 | | -- | **3SB2901-4RE** | | 100 | 10 units | 41J |
| | 5 | | -- | **3SB2901-4RF** | | 100 | 10 units | 41J |
| | 6 | | -- | **3SB2901-4RG** | | 100 | 10 units | 41J |
| | 7 | | -- | **3SB2901-4RH** | | 100 | 10 units | 41J |
| | 8 | | -- | **3SB2901-4RJ** | | 100 | 10 units | 41J |
| | 9 | | -- | **3SB2901-4RK** | | 100 | 10 units | 41J |
| **Graphic ON/OFF symbols** | | | | | | | | |
| | O (Off) | | 5008 IEC | **3SB2901-4MB** | | 100 | 10 units | 41J |
| | I (On) |  | 5007 IEC | **3SB2901-4MC** | | 100 | 10 units | 41J |
| | II (On) | | -- | **3SB2901-4MD** | | 100 | 10 units | 41J |



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Insert labels and insert caps

| | Inscription/symbol | | Symbol No. | Insert labels For pushbuttons and illuminated pushbuttons, flat Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Graphic equipment symbols** | | | | | | | | |
| 3SB2901-4PA | Electric motor | | 0011 ISO | **3SB2901-4PA** | | 100 | 10 units | 41J |
| | Horn | | 5014 IEC | **3SB2901-4PB** | | 100 | 10 units | 41J |
| | Pump | | 0134 ISO | **3SB2901-4PD** | | 100 | 10 units | 41J |
| | Coolant pump | | 0355 ISO | **3SB2901-4PE** | | 100 | 10 units | 41J |
| **Graphic motion symbols** | | | | | | | | |
| 3SB2901-4NA | Motion in direction of arrow (straight) | | 5022 IEC | **3SB2901-4NA** | | 100 | 10 units | 41J |
| | Motion in direction of arrow (diagonal) | | -- | **3SB2901-4NB** | | 100 | 10 units | 41J |
| | Clockwise rotation | | 0004 ISO | **3SB2901-4NC** | | 100 | 10 units | 41J |
| | Counterclockwise rotation | | -- | **3SB2901-4ND** | | 100 | 10 units | 41J |
| | Fast motion | | 0266 ISO | **3SB2901-4NE** | | 100 | 10 units | 41J |
| | Increase (plus) | | 5005 IEC | **3SB2901-4NG** | | 100 | 10 units | 41J |
| | Decrease (minus) |  | 5006 IEC | **3SB2901-4MC** | | 100 | 10 units | 41J |
| **Graphic control symbols** | | | | | | | | |
| 3SB2901-4QK | Clamp | | -- | **3SB2901-4QB** | | 100 | 10 units | 41J |
| | Release | | -- | **3SB2901-4QC** | | 100 | 10 units | 41J |
| | Release brake | | 0021 ISO | **3SB2901-4QE** | | 100 | 10 units | 41J |
| | Lock | | 0022 ISO | **3SB2901-4QF** | | 100 | 10 units | 41J |
| | Unlock | | 0023 ISO | **3SB2901-4QG** | | 100 | 10 units | 41J |
| | On/Off, momentary contact | | 5011 IEC | **3SB2901-4QJ** | | 100 | 10 units | 41J |
| | Manual operation | | 0096 ISO | **3SB2901-4QK** | | 100 | 10 units | 41J |
| | Automatic sequence | | 0017 ISO | **3SB2901-4QL** | | 100 | 10 units | 41J |
| **Customized inscriptions** | | | | | | | | |
| | **Inscription of choice** (see "Options", page 13/152) | | | **3SB2901-4AZ** | | | | |
| | 1 line of text with up to 6 characters with 3 mm font height. Please add the appropriate order code to the article number and specify the line of text required. | | | **K0Y** | | 1 | 1 unit | 41J |
| | | | | **K1Y or K2Y** | | 1 | 1 unit | 41J |
| | **Other graphic symbols** | | | **3SB2901-4AZ** | | | | |
| | Please add the order code **"K3Y"** to the article number and specify the serial number and the applied standard (ISO 7000 or IEC 60417). | | | **K3Y** | | 1 | 1 unit | 41J |
| | **Any inscription or symbol** | | | **3SB2901-4AZ** | | | | |
| | Please add the order code **"K9Y"** to the article number and specify the inscription or the symbol required. | | | **K9Y** | | 1 | 1 unit | 41J |





* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Inscription/symbol | | Symbol No. | Insert caps For pushbuttons and illuminated pushbuttons, raised<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **For self-inscription** | | | | | | | | |
| 3SB2901-5AA | Blank | | -- | **3SB2901-5AA** | | 100 | 10 units | 41J |
| **With inscription** | | | | | | | | |
| 3SB2901-5EB | On | | -- | **3SB2901-5EB** | | 100 | 10 units | 41J |
| | Aus | | -- | **3SB2901-5AC** | | 100 | 10 units | 41J |
| | Auf | | -- | **3SB2901-5AD** | | 100 | 10 units | 41J |
| | Zu | | -- | **3SB2901-5AL** | | 100 | 10 units | 41J |
| 3SB2901-5AC | 0 | | -- | **3SB2901-5RA** | | 100 | 10 units | 41J |
| | 1 | | -- | **3SB2901-5RB** | | 100 | 10 units | 41J |
| | 2 | | -- | **3SB2901-5RC** | | 100 | 10 units | 41J |
| | 3 | | -- | **3SB2901-5RD** | | 100 | 10 units | 41J |
| | 4 | | -- | **3SB2901-5RE** | | 100 | 10 units | 41J |
| | 5 | | -- | **3SB2901-5RF** | | 100 | 10 units | 41J |
| | 6 | | -- | **3SB2901-5RG** | | 100 | 10 units | 41J |
| | 7 | | -- | **3SB2901-5RH** | | 100 | 10 units | 41J |
| | 8 | | -- | **3SB2901-5RJ** | | 100 | 10 units | 41J |
| | 9 | | -- | **3SB2901-5RK** | | 100 | 10 units | 41J |
| **Graphic ON/OFF symbols** | | | | | | | | |
| | O (Off) | | 5008 IEC | **3SB2901-5MB** | | 100 | 10 units | 41J |
| | I (On) |  | 5007 IEC | **3SB2901-5MC** | | 100 | 10 units | 41J |
| **Graphic motion symbols** | | | | | | | | |
| 3SB2901-5NA | Motion in direction of arrow | | 5022 IEC | **3SB2901-5NA** | | 100 | 10 units | 41J |
| | Motion in direction of arrow | | -- | **3SB2901-5NB** | | 100 | 10 units | 41J |
| | Increase (plus) | | 5005 IEC | **3SB2901-5NG** | | 100 | 10 units | 41J |
| | Decrease (minus) |  | 5006 IEC | **3SB2901-5MC** | | 100 | 10 units | 41J |
| **Graphic control symbols** | | | | | | | | |
| | Clamp |  | -- | **3SB2901-5QB** | | 100 | 10 units | 41J |
| | Release |  | -- | **3SB2901-5QC** | | 100 | 10 units | 41J |
| **Customized inscriptions** | | | | | | | | |
| | **Inscription of choice** (see "Options", page 13/152) | | | **3SB2901-5AZ** | | | | |
| | 1 line of text with up to 6 characters with 3 mm font height. Please add the appropriate order code to the article number and specify the line of text required. | | | **K0Y** | | 1 | 1 unit | 41J |
| | | | | **K1Y or K2Y** | | 1 | 1 unit | 41J |
| | **Other graphic symbols** | | | **3SB2901-5AZ** | | | | |
| | Please add the order code **"K3Y"** to the article number and specify the serial number and the applied standard (ISO 7000 or IEC 60417). | | | **K3Y** | | 1 | 1 unit | 41J |
| | **Any inscription or symbol** | | | **3SB2901-5AZ** | | | | |
| | Please add the order code **"K9Y"** to the article number and specify the inscription or the symbol required. | | | **K9Y** | | 1 | 1 unit | 41J |

13

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**Illustrations are approximate**

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## Insert labels and insert caps

| | Inscription/symbol | Symbol No. | Insert caps For indicator lights<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **For self-inscription** | | | | | | | |
| <br>3SB2901-7AA | Blank | -- | **3SB2901-7AA** | | 100 | 10 units | 41J |
| **With inscription** | | | | | | | |
| <br>3SB2901-7AP | Betrieb | -- | **3SB2901-7AP** | | 100 | 1 unit | 41J |
| | Störung | -- | **3SB2901-7AQ** | | 100 | 10 units | 41J |
| **Graphic symbols** | | | | | | | |
| <br>3SB2901-7QK | Pump | 0134 ISO | **3SB2901-7PD** | | 100 | 10 units | 41J |
| | Manual operation | 0096 ISO | **3SB2901-7QK** | | 100 | 10 units | 41J |
| **Customized inscriptions** | | | | | | | |
| | **Inscription of choice** (see "Options")<br>1 line of text with up to 6 characters with 3 mm font height. Please add the appropriate order code to the article number and specify the line of text required. | | **3SB2901-7AZ**<br>**K0Y**<br>**K1Y or K2Y** | | <br>1<br>1 | <br>1 unit<br>1 unit | <br>41J<br>41J |
| | **Other graphic symbols**<br>Please add the order code **"K3Y"** to the article number and specify the serial number and the applied standard (ISO 7000 or IEC 60417). | | **3SB2901-7AZ**<br>**K3Y** | | <br>1 | <br>1 unit | <br>41J |
| | **Any inscription or symbol**<br>Please add the order code **"K9Y"** to the article number and specify the inscription or the symbol required. | | **3SB2901-7AZ**<br>**K9Y** | | <br>1 | <br>1 unit | <br>41J |

## Options

### *Customized inscriptions*

Labels and caps can be inscribed with text and symbols not listed in the ordering data. Append the following order codes to the article number:

- Text line in upper/lower case, always upper case for beginning of line (e.g. "Lift"): **K0Y**
- Text line in upper case (e.g. "LIFT"): **K1Y**
- Text line in lower case (e.g. "lift"): **K2Y**
- Symbol with number according to ISO 7000 or IEC 60417: **K3Y**
- Any inscription or symbols according to order form supplement: **K9Y**

When ordering, specify the required inscription in plain text in addition to the article number and order code. In the case of special inscriptions with words in languages other than German, give the exact spelling and specify the language.

One line with up to 6 characters with 3 mm font height is possible for the inscription (see ordering example 1).

Symbols can also be ordered with numbers according to ISO 7000 or IEC 60417 (see ordering examples 2 and 3).

For special symbols (order code K9Y), a CAD drawing in DXF format can be submitted.

Ordering example 1

3SB2901–4AZ
K1Y
Z1=Pump

Ordering example 2

3SB2901–4AZ
K3Y
Z=5008 IEC

Ordering example 3

3SB2901–4AZ
K3Y
Z=1118 ISO



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

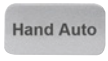
The backing plates consist of a black plastic label holder and a labeling plate (silver with black print) for sticking in place.

Note mounting dimensions!

***Inscription***

The inscriptions (also special inscriptions) are in lower case with upper case initial letters. Graphic symbols, including those not listed in the catalog, are according to ISO 7000 or IEC 60417. For customized inscriptions, see "Options".

## Selection and ordering data

| Inscription/symbol | Symbol No. | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Labeling plates, self-adhesive, 9.5 mm × 18.5 mm** | | | | | | |
| 3SB2901-2AA | | | | | | |
| Blank | -- | **3SB2901-2AA** | | 100 | 10 units | 41J |
| 3SB2901-2AB | | | | | | |
| Ein | -- | **3SB2901-2AB** | | 100 | 10 units | 41J |
| Aus | -- | **3SB2901-2AC** | | 100 | 10 units | 41J |
| Auf | -- | **3SB2901-2AD** | | 100 | 10 units | 41J |
| Zu | -- | **3SB2901-2AL** | | 100 | 10 units | 41J |
| Vor | -- | **3SB2901-2AF** | | 100 | 10 units | 41J |
| Zurück | -- | **3SB2901-2AG** | | 100 | 10 units | 41J |
| Schnell | -- | **3SB2901-2AM** | | 100 | 10 units | 41J |
| Langsam | -- | **3SB2901-2AN** | | 100 | 10 units | 41J |
| Betrieb | -- | **3SB2901-2AP** | | 100 | 10 units | 41J |
| Störung | -- | **3SB2901-2AQ** | | 100 | 10 units | 41J |
| Einrichten | -- | **3SB2901-2AR** | | 100 | 10 units | 41J |
| 3SB2901-2EB | | | | | | |
| On | -- | **3SB2901-2EB** | | 100 | 10 units | 41J |
| Off | -- | **3SB2901-2EC** | | 100 | 10 units | 41J |
| Start | -- | **3SB2901-2EL** | | 100 | 10 units | 41J |
| Reset | -- | **3SB2901-2EM** | | 100 | 10 units | 41J |
| Fault | -- | **3SB2901-2EW** | | 100 | 10 units | 41J |
|  3SB2901-2BA | | | | | | |
| Hand Auto | -- | **3SB2901-2BA** | | 100 | 10 units | 41J |
| Hand O Auto | -- | **3SB2901-2BE** | | 100 | 10 units | 41J |
| Man O Auto | -- | **3SB2901-2ET** | | 100 | 10 units | 41J |
| 3SB2901-2NA | | | | | | |
| **Graphic symbols** | | | | | | |
| O (Off) | 5008 IEC | **3SB2901-2MB** | | 100 | 10 units | 41J |
| I (On) | 5007 IEC | **3SB2901-2MC** | | 100 | 10 units | 41J |
| O I (horizontal) | -- | **3SB2901-2MF** | | 100 | 10 units | 41J |
| Motion in direction of arrow | 5002 IEC | **3SB2901-2NA** | | 100 | 10 units | 41J |
| **Customized inscriptions or symbols** (see "Options") | -- | **3SB2901-2XZ** | | | | |
| | | **K0Y** | | 1 | 10 units | 41J |
| | | **K1Y, K2Y or K3Y** | | 1 | 10 units | 41J |
| | | **K9Y** | | 1 | 10 units | 41J |
| **Label holders for label size 9.5 mm x 18.5 mm** | | | | | | |
| 3SB2902-0AB | | | | | | |
| **Label holders for labeling plates**<br>The label holders must not be used with the 3SB2...-1AC01 EMERGENCY STOP mushroom pushbutton. | -- | **3SB2902-0AB** | | 100 | 10 units | 41J |

## Options

***Customized inscriptions***

The labels can be inscribed with text and symbols not listed in the ordering data. Append the following order codes to the article number:

- Text line(s) in upper/lower case, always upper case for beginning of line (e.g. "Lift off"): **K0Y**
- Text line(s) in upper case (e.g. "LIFT OFF"): **K1Y**
- Text line(s) in lower case (e.g. "lift off"): **K2Y**
- Symbol with number according to ISO 7000 or IEC 60417: **K3Y**
- Any inscription or symbols according to order form supplement: **K9Y**

When ordering, specify the required inscription in plain text in addition to the article number and order code. In the case of special inscriptions with words in languages other than German, give the exact spelling and specify the language.

Two lines of 11 characters per line are possible with 4 mm (1 line) or 3 mm (2 lines) font height.

Symbols can also be ordered with numbers according to ISO 7000 or IEC 60417 (see ordering example).

For special symbols (order code K9Y), a CAD drawing in DXF format can be submitted.

Ordering example

3SB2901-2XZ
K3Y
Z=1118 ISO



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## Mounting parts and components

### Selection and ordering data

| | Version | Lamp voltage | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **Buttons and lenses**[1] | | | | | | | | |
| 3SB2910-0AF | **Buttons, flat** For pushbuttons | -- | Black | **3SB2910-0AB** | | 100 | 10 units | 41J |
| | | -- | Red | **3SB2910-0AC** | | 100 | 10 units | 41J |
| | | -- | Yellow | **3SB2910-0AD** | | 100 | 10 units | 41J |
| | | -- | Green | **3SB2910-0AE** | | 100 | 10 units | 41J |
| | | -- | Blue | **3SB2910-0AF** | | 100 | 10 units | 41J |
| | | -- | White | **3SB2910-0AG** | | 100 | 10 units | 41J |
| | | -- | Clear | **3SB2910-0AH** | | 100 | 10 units | 41J |
| 3SB2910-0CF | **Buttons, flat** For illuminated pushbuttons | -- | Red | **3SB2910-0CC** | | 100 | 10 units | 41J |
| | | -- | Yellow | **3SB2910-0CD** | | 100 | 10 units | 41J |
| | | -- | Green | **3SB2910-0CE** | | 100 | 10 units | 41J |
| | | -- | Blue | **3SB2910-0CF** | | 100 | 10 units | 41J |
| | | -- | White | **3SB2910-0AG** | | 100 | 10 units | 41J |
| | | -- | Clear | **3SB2910-0AH** | | 100 | 10 units | 41J |
| 3SB2910-0BD | **Buttons, raised** For pushbuttons | -- | Black | **3SB2910-0BB** | | 1 | 10 units | 41J |
| | | -- | Red | **3SB2910-0BC** | | 1 | 10 units | 41J |
| | | -- | Yellow | **3SB2910-0BD** | | 1 | 10 units | 41J |
| | | -- | Clear | **3SB2910-0BH** | | 1 | 10 units | 41J |
| 3SB2910-0DD | **Buttons, raised** For illuminated pushbuttons | -- | Red | **3SB2910-0DC** | | 1 | 10 units | 41J |
| | | -- | Yellow | **3SB2910-0DD** | | 1 | 10 units | 41J |
| | | -- | Clear | **3SB2910-0BH** | | 1 | 10 units | 41J |
| 3SB2910-1AD | **Screw lenses** With concentric rings | -- | Red | **3SB2910-1AC** | | 100 | 10 units | 41J |
| | | -- | Yellow | **3SB2910-1AD** | | 100 | 10 units | 41J |
| | | -- | Green | **3SB2910-1AE** | | 100 | 10 units | 41J |
| | | -- | Blue | **3SB2910-1AF** | | 100 | 10 units | 41J |
| | | -- | White | **3SB2910-1AG** | | 100 | 10 units | 41J |
| | | -- | Clear | **3SB2910-1AH** | | 100 | 10 units | 41J |
| 3SB2910-1BE | **Screw lenses** Smooth, for inscription with insert cap | -- | Red | **3SB2910-1BC** | | 100 | 10 units | 41J |
| | | -- | Yellow | **3SB2910-1BD** | | 100 | 10 units | 41J |
| | | -- | Green | **3SB2910-1BE** | | 100 | 10 units | 41J |
| | | -- | Blue | **3SB2910-1BF** | | 100 | 10 units | 41J |
| | | -- | Clear | **3SB2910-1BH** | | 100 | 10 units | 41J |
| **Keys for actuators** | | | | | | | | |
| 3SB2908-2AJ | **Keys** For CES key-operated switch, Lock No. SB2 | -- | -- | **3SB2908-2AJ** | | 1 | 1 unit | 41J |
| **Lamps, wedge base**[2] | | | | | | | | |
| 3SB2908-1AE | **Incandescent lamps** Wedge base W2 x 4.6 d, 1.0 W | AC/DC | Clear | | | | | |
| | | 6 | | **3SB2908-1AA** | | 100 | 10 units | 41J |
| | | 12 | | **3SB2908-1AB** | | 100 | 10 units | 41J |
| | | 24 | | **3SB2908-1AC** | | 100 | 10 units | 41J |
| | | 30 | | **3SB2908-1AD** | | 100 | 10 units | 41J |
| | | 48 | | **3SB2908-1AE** | | 1 | 10 units | 41J |
| | | 60 | | **3SB2908-1AF** | | 1 | 10 units | 41J |
| 3SB3901-1SB | **LED lamps, super-bright** Wedge base W2 x 4.6 d | 24 AC/DC | Red | **3SB3901-1SB** | | 1 | 10 units | 41J |
| | | | Yellow | **3SB3901-1RB** | | 1 | 10 units | 41J |
| | | | Green | **3SB3901-1TB** | | 1 | 10 units | 41J |
| | | | White | **3SB3901-1UB** | | 1 | 10 units | 41J |
| | | | Blue | **3SB2908-1BD** | | 1 | 10 units | 41J |
| 3SB2908-1BD | | 28 AC/DC | Red | **3SB3901-1SE** | | 1 | 10 units | 41J |
| | | | Yellow | **3SB3901-1RE** | | 1 | 10 units | 41J |
| | | | Green | **3SB3901-1TE** | | 1 | 10 units | 41J |
| | | | White | **3SB3901-1UE** | | 1 | 10 units | 41J |
| | | | Blue | **3SB3901-1VE** | | 1 | 10 units | 41J |
| 3SB2908-2AB | **Lamp extractors** For lamps with base W2 x 4.6 d | -- | -- | **3SB2908-2AB** | | 1 | 1 unit | 41J |

[1] Included in the scope of supply of actuators or indicator lights.

[2] Included in the scope of supply of some complete units.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Accessories for command points** | | | | | | |
| 3SB2902-0AA | **Single frames**<br>For square design[1] | **3SB2902-0AA** | | 100 | 10 units | 41J |
| 3SB2908-2AG | **Backing plates, yellow, Ø 50 mm**<br>As high-contrast background for EMERGENCY STOP, self-adhesive | | | | | |
| | • Without inscription | **3SB2908-2AF** | | 1 | 1 unit | 41J |
| | • With German inscription "NOT-HALT" | **3SB2908-2AG** | | 1 | 1 unit | 41J |
| | • With German inscription "NOT-AUS" | **3SB2908-2AK** | | 1 | 1 unit | 41J |
| 3SB2908-3AA | **Sealing plugs**<br>Plastic, black<br>(degree of protection IP65) | **3SB2908-3AA** | | 1 | 1 unit | 41J |
| 3SB2908-3AB | **Protective caps, clear**<br>Silicone, for pushbuttons with flat and raised buttons | **3SB2908-3AB** | | 1 | 1 unit | 41J |
| **Flat connectors** | | | | | | |
| 3SB2908-8AA | **Plug-in sleeves**<br>For flat connectors 2.8 × 0.8 mm, cross-section 0.5 ... 1.5 mm$^2$ | **3SB2908-8AA** | | 100 | 250 units | 41J |
| 3SB2908-8AB | **Insulating sleeves**<br>For flat connectors, attachable from the front | **3SB2908-8AB** | | 100 | 250 units | 41J |
| 3SB2908-8AD | **Complete connectors**[2]<br>For connecting contact blocks and lampholders (up to 10 connections)<br>Ensure finger protection according to IEC 60529 and DGUV Regulation 3 | **3SB2908-8AD** | | 1 | 1 unit | 41J |
| 3SB2908-8AE | **Plug-in sleeves**<br>For flat connectors 2.8 × 0.8 mm, with locating spring for latching in complete connector | **3SB2908-8AE** | | 100 | 10 units | 41J |
| **Tools** | | | | | | |
| 3SB2908-2AA | **Dismantling tools**<br>For holders and lampholders with holder | **3SB2908-2AA** | | 1 | 1 unit | 41J |
| 3SB2908-2AC | **Mounting tools**<br>For buttons and screw lenses | **3SB2908-2AC** | | 1 | 1 unit | 41J |
| 6179 0950 | **Crimping tools for non-insulated connections, type KRBC 0560**[3]<br>For plug-in sleeves (both versions) | **6179 0950** | | | | |

[1] Not suitable for EMERGENCY STOP mushroom pushbuttons.

[2] Required 3SB2908-8AE plug-in sleeves for flat connectors 2.8 × 0.8 mm are not included in the scope of supply.

[3] Crimping tool available from: Lapp Kabel, Stuttgart, Germany (see page 16/18).

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 3SE7 metal enclosures

### Overview

3SE7 cable-operated switches

**More information**

Homepage, see www.siemens.com/sirius-command
Industry Mall, see www.siemens.com/product?3SE7
Configuration Manual, see https://support.industry.siemens.com/cs/ww/en/view/109758224

The cable-operated switches are used for monitoring or as EMERGENCY STOP devices on particularly endangered system components.

If the cable-operated switch and cable system is to function properly, the steel cable, cable clamps, cable eyes and eyebolts for the basic equipment must be ordered separately (see page 13/160).

As the effective range of a cable-operated switch is only limited by the length of the trip-wire, large systems can also be protected. Cable-operated switches (requiring pulling at both ends) and conveyor belt unbalance trackers are used primarily for monitoring very long belt systems.

***Contact blocks***

The switches for cable lengths up to 50 m are supplied with 1 NO + 1 NC, 2 NC, or 1 NO + 2 NC contacts and those up to 75 m with 1 NO + 3 NC contacts. The switches for cable lengths of 2 x 100 m and the conveyor belt unbalance tracker are supplied with 2 NO + 2 NC contacts.

The NC contacts for cable-break and cable-pull signaling are positive-opening. The NO contact can be used, for example, for signaling purposes.

***Readiness for use and display***

Cable-operated switches with one-sided operation are made ready for use by pre-tensioning the turnbuckle.

On switches with interlocking, with a pre-tensioned cable, the locking must be deactivated beforehand in order to return the cable-operated switch to its original position.

The cable-operated switch and the conveyor belt unbalance tracker can be supplied optionally with a factory-fitted LED (red, 24 V DC). This light in innovative chip-on-board technology allows the operating state of the switch to be visible at a distance of at least 50 m.

### Application

***Standards***

The switches are equipped with latching mechanism and positive-opening NC contacts and are thus suitable for operation in EMERGENCY STOP devices according to ISO 13850.

### Technical specifications

| Type | | 3SE7120-2 | 3SE7120-1 | 3SE7150 | 3SE7140 | 3SE7141 | 3SE7160 | 3SE7310 |
|---|---|---|---|---|---|---|---|---|
| **General data** | | | | | | | | |
| **Standards** | | IEC 60947-5-1<br>IEC 60204-1, ISO 13850 | | | | | | |
| **Approvals** | | UL/CSA | | | | | | |
| **Electrical design** | | Contacts electrically isolated from each other | | | | | | |
| **Electrical load** | | | | | | | | |
| • 2-pole, at AC-15 | | 400 V AC, 6 A | | | | 240 V AC, 2 A | 400 V AC, 6 A | -- |
| • 3-pole, at AC-15 | | 240 V AC, 2 A | | | -- | | | |
| • 4-pole, at AC-15 | | -- | | | | | 400 V AC, 6 A | |
| • Minimum | | 24 V AC/DC, 10 mA | | | | | | |
| **Short-circuit protection** | A | 6 (slow) | | | | | | |
| **Mechanical endurance** | Operating cycles | 10 000 00 | 100 000 | | | | | |
| **Contact material** | | Fine silver | | | | | | |
| **Operation** | | By cable pull | By cable pull or cable break | | | | | |
| **Cable length, maximum** | m | 5 | | 20 | 50 | 75 | 2 x 100 | – |
| **Distance between cable supports, max.** | m | 3 | | | 5 | | 4 | – |
| **Enclosures** | | | | | | | | |
| **Enclosure material** | | GD Al alloy, coated (color), dark black RAL 9005 | | | | | | |
| **Cover** | | Shock-resistant thermoplast | | | | | Metal | |
| **Degree of protection** according to IEC 60529 [1] | | IP65 | | | | IP67 | IP65 | |
| **Ambient temperature** | °C | -25 ... +70 | | | | | | |
| **Mounting** | | Designed for M5 | | | | | | |
| **Mounting distance** | mm | 30 and 40 | | | | | | |
| **Cable entry** | | 2 x (M20 x 1.5) | | | 1 x (M20 x 1.5)<br>2 x (M25 x 1.5) | 3 x (M20 x 1.5) | 2 x (M25 x 1.5) | |
| **Connection type** | | Screw terminals M3.5, self-lifting clamp terminal | | | | | | |

[1] IP54 for versions with key-operated release.

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## Selection and ordering data

| | Version | Cable length | Contacts | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | m | | | | | | |
| **Cable-operated switches for cable-pull and cable-break monitoring** | | | | | | | | |
| 3SE7120-2DD01 3SE7120-1BH00 | **Metal enclosures, IP65** (cover made of plastic) | 5 | | | | | | |
| | • Without latching (only for cable-pull monitoring): | | | | | | | |
| | - Spring, 55 N | | 1 NO + 1 NC ➔ | **3SE7120-2DD01** | | 1 | 1 unit | 41K |
| | - Spring, 100 N | | 1 NO + 1 NC ➔ | **3SE7120-2DD01-1AS7** | | 1 | 1 unit | 41K |
| | • With latching and button reset | | 2 NC ➔ | **3SE7120-1BF00** | | 1 | 1 unit | 41K |
| | - With yellow cover | | 1 NO + 2 NC ➔ | **3SE7120-1BH00** | | 1 | 1 unit | 41K |
| 3SE7150-2DD00 3SE7150-1BH00 | **Metal enclosures, IP65** (cover made of plastic), with alignment window | 20 | | | | | | |
| | • Without latching | | 1 NO + 1 NC ➔ | **3SE7150-2DD00** | | 1 | 1 unit | 41K |
| | • With latching and button reset | | 1 NO + 1 NC ➔ | **3SE7150-1BD00** | | 1 | 1 unit | 41K |
| | | | 2 NC ➔ | **3SE7150-1BF00** | | 1 | 1 unit | 41K |
| | - With yellow cover | | 1 NO + 2 NC ➔ | **3SE7150-1BH00** | | 1 | 1 unit | 41K |
| 3SE7150-1BD04 3SE7150-1BH04 | **Metal enclosures, IP65** (cover made of plastic), with alignment window, with LED, red, 24 V DC | 20 | | | | | | |
| | • Without latching | | 1 NO + 1 NC ➔ | **3SE7150-2DD04** | | 1 | 1 unit | 41K |
| | • With latching and button reset | | 1 NO + 1 NC ➔ | **3SE7150-1BD04** | | 1 | 1 unit | 41K |
| | - With yellow cover | | 1 NO + 2 NC ➔ | **3SE7150-1BH04** | | 1 | 1 unit | 41K |
| 3SE7140-1BD00 | **Metal enclosures, IP65** (cover made of plastic) | 50 | | | | | | |
| | • With latching and button reset | | 1 NO + 1 NC ➔ | **3SE7140-1BD00** | | 1 | 1 unit | 41K |
| | | | 2 NC ➔ | **3SE7140-1BF00** | | 1 | 1 unit | 41K |
| | • In addition with LED, red, 24 V DC | | | | | | | |
| | - 1 x M20 x 1.5 | | 1 NO + 1 NC ➔ | **3SE7140-1BD04** | | 1 | 1 unit | 41K |
| | - 2 x M25 x 1.5 | | 1 NO + 1 NC ➔ | **3SE7140-1BD04-1AS6** | | 1 | 1 unit | 41K |
| | • With latching and key unlatching | | 1 NO + 1 NC ➔ | **3SE7140-1CD00** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

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## 3SE7 metal enclosures

| Version | Cable length | Contacts | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | m | | | | | | |
| **Cable-operated switches for cable-pull and cable-break monitoring** | | | | | | | |
| **Metal enclosures, IP67** (cover made of plastic) | | | | | | | |
| • With EMERGENCY STOP mushroom, with rotate to unlatch | 75 | 1 NO + 3 NC ➔ | **3SE7141-1EG10** | | 1 | 1 unit | 41K |
| - With yellow cover | | 1 NO + 3 NC | **3SE7141-1EG10-0CA1** | | 1 | 1 unit | 41K |
| **Metal enclosures, IP65** With actuation on both sides | 2 x 100 | | | | | | |
| • With latching and button reset | | 2 NO + 2 NC ➔ | **3SE7160-1AE00** | | 1 | 1 unit | 41K |
| | | 1 NO + 1 NC ➔ | **3SE7160-1BD00** | | 1 | 1 unit | 41K |
| - With LED, red, 24 V DC | | 2 NO + 2 NC ➔ | **3SE7160-1AE04** | | 1 | 1 unit | 41K |
| **Conveyor belt unbalance trackers** | | | | | | | |
| **Metal enclosures, IP65** | | | | | | | |
| • With latching and push to unlatch | -- | 2 NO + 2 NC ➔ | **3SE7310-1AE00** | | 1 | 1 unit | 41K |
| - With LED, red, 24 V DC | | 2 NO + 2 NC ➔ | **3SE7310-1AE04** | | 1 | 1 unit | 41K |

3SE7141-1EG10

3SE7141-1EG10-0CA1

3SE7160-1AE04

3SE7310-1AE04

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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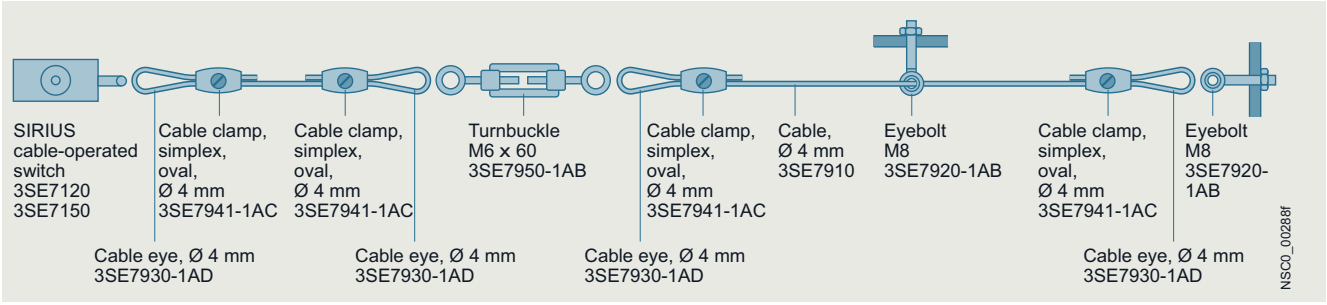
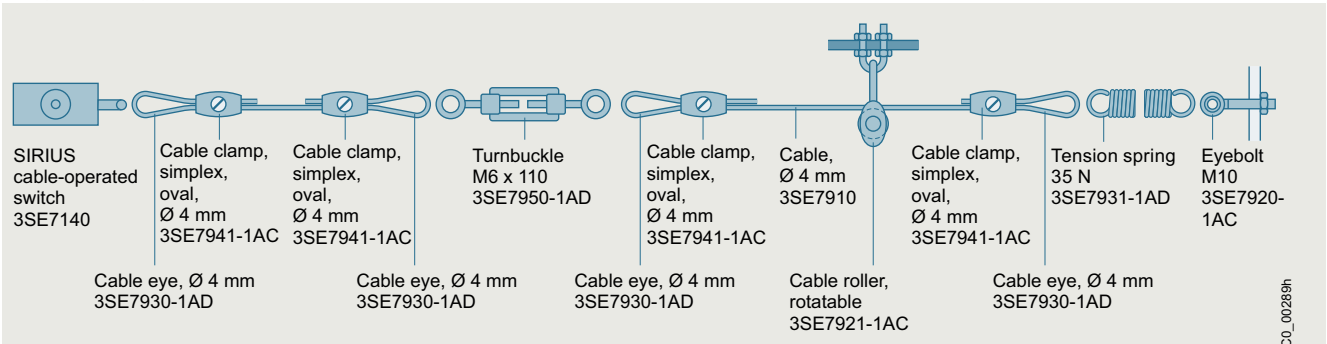
## Overview

### *Configuration of the cable pulls*

**Short cable lengths up to 25 m**

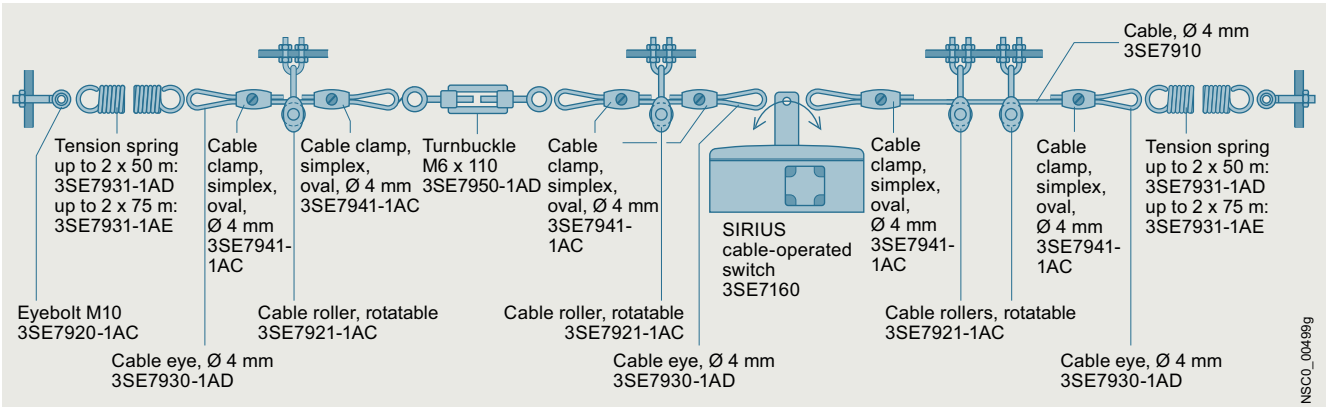



**Long cable lengths up to 50 m**




Use of a tension spring is essential for cable length ≥ 25 m.

**Pulling from both sides up to 2 x 100 m**




Spring must always be on both sides, as the switch is otherwise not able to be operated.

Note:

Large temperature fluctuations require corresponding compensation springs. Cable supports must be used at the recommended intervals.

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## Accessories

### Selection and ordering data

The basic equipment for the cable-operated switch and cable system includes: Steel cable, cable clamps, cable eyes and eyebolts

| | Version | Length/ diameter | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Trip-wire with fixing** | | | | | | | |
| 3SE7910-3AA | **Steel cable**<br>With red plastic sheath, Ø 4 mm, including sheath; steel wire Ø 3.2 mm | 10 m<br>15 m<br>20 m<br>50 m | **3SE7910-3AA**<br>**3SE7910-3AB**<br>**3SE7910-3AC**<br>**3SE7910-3AH** | | 1<br>1<br>1<br>1 | 1 unit<br>1 unit<br>1 unit<br>1 unit | 41K<br>41K<br>41K<br>41K |
| 3SE7941-1AC 3SE7942-1AA | **Cable clamps**, galvanized white, zinc-plated | | | | | | |
| | • Oval | Ø 4 mm | **3SE7941-1AC** | | 1 | 1 unit | 41K |
| | • Single (1 set = 4 units) | 2 x Ø 4 mm | **3SE7942-1AA** | | 1 | 4 units | 41K |
| 3SE7943-1AC 3SE7944-1AC | • Simplex (1 set = 4 units) | Ø 4 mm | **3SE7943-1AC** | | 1 | 4 units | 41K |
| | • Duplex (1 set = 4 units) | 2 x Ø 4 mm | **3SE7944-1AC** | | 1 | 4 units | 41K |
| 3SE7931-1AB | **Tension springs** (zinc-plated)<br>To maintain the counter tension | | | | | | |
| | • 13 N | -- | **3SE7931-1AB** | | 1 | 1 unit | 41K |
| | • 35 N, for cable pulls up to 50 m | -- | **3SE7931-1AD** | | 1 | 1 unit | 41K |
| | • > 35 N, for cable pulls up to 2 × 75 m | -- | **3SE7931-1AE** | | 1 | 1 unit | 41K |
| 3SE7921-1AC | **Cable roller**<br>For changing the direction of the cable, rotatable | Ø 4 mm | **3SE7921-1AC** | | 1 | 1 unit | 41K |
| 3SE7921-1AA | **Fixture for cable roller**<br>(incl. fixing nuts) | -- | **3SE7921-1AA** | | 1 | 1 unit | 41K |
| 3SE7930-1AD | **Cable eyes**<br>For changing the direction of the cable and improved power transmission at the fixing points<br>(1 set = 4 units) | Ø 4 mm | **3SE7930-1AD** | | 1 | 4 units | 41K |
| 3SE7920-1AB | **Bolts**<br>• Eyebolts for fixing the cable | | | | | | |
| | - Including M8 nut | -- | **3SE7920-1AB** | | 1 | 1 unit | 41K |
| | - Including M10 nut | -- | **3SE7920-1AC** | | 1 | 1 unit | 41K |
| 3SE7922-1AB | • Lifting eyebolt, rotated for cable tensioning and low-wear cable routing in the case of frequent pulling | | | | | | |
| | - Including M6 nut | -- | **3SE7922-1AB** | | 1 | 1 unit | 41K |
| 3SE7950-1AB | **Turnbuckles**<br>For precise adjustment of the pre-tension | | | | | | |
| | • M6 x 60 | -- | **3SE7950-1AB** | | 1 | 1 unit | 41K |
| | • M6 x 110 | -- | **3SE7950-1AD** | | 1 | 1 unit | 41K |
| 3SE7932-1AC | **Carabiner hooks DIN 5299, Form C, 50 mm x 5 mm**<br>For easy fastening of the cable to the tension spring, turnbuckle and lifting eye bolt | | | | | | |
| | Stainless steel (1 set = 2 units) | -- | **3SE7932-1AC** | | 1 | 4 units | 41K |
| **Spare parts** | | | | | | | |
| 3SX3235 | **LED lamps,** red<br>24 V DC<br>diameter 25 mm;<br>for M20 x 1.5 connection | -- | **3SX3235** | | 1 | 1 unit | 41K |

13



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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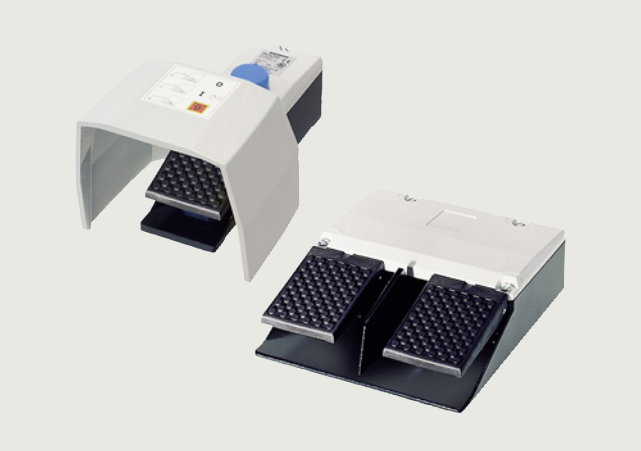
## Overview



3SE29 foot switch with metal enclosure

| More information |
|---|
| Homepage, see www.siemens.com/sirius-command |
| Industry Mall, see www.siemens.com/product?3SE2 |
| Configuration Manual, see https://support.industry.siemens.com/cs/ww/en/view/109758224 |

### *Standard switches*

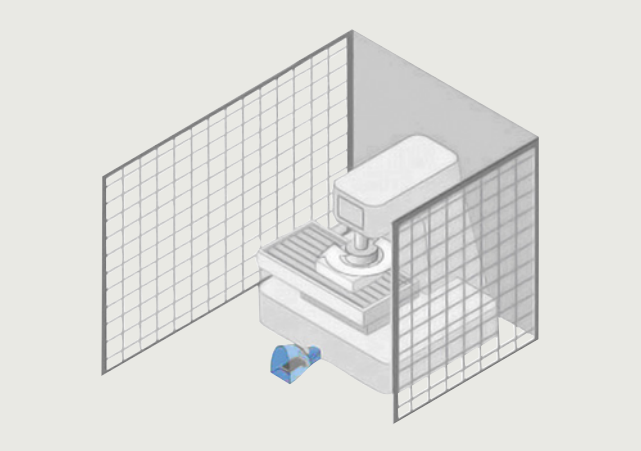
The 3SE29 and 3SE39 foot switch range encompasses versions in a metal enclosure for rugged applications as well as versions with plastic enclosure for less harsh environments. The devices can be supplied with or without a cover and have fixing holes for them to be screwed to the floor.

Depending on the particular application, the metal enclosures can be ordered with contact blocks in latching or momentary-contact versions. The momentary-contact pedal switch in the plastic enclosure has one microswitch (changeover contact) per actuating pedal.

### *Safety foot switches*

The 3SE2924-3AA20 one-pedal safety foot switches are used on machines and plants as OK switches when operation by hand is not possible. The switches have an interlocking function.

The safety foot switches are protected by a guard hood against accidental operation.



Application example

The switches have two contact blocks, each with one NO contact and one NC contact. The NO contacts and NC contacts of the two contact blocks are connected in series for easy connection of a single-phase motor. The normal workflow is initiated by pressing down the pedal as far as the pressure point so that the two NO contacts close and the motor starts to run.

If in the event of danger the pedal is pressed beyond the resistance of the pressure point, the positive-opening NC contacts will open and the motor is stopped. At the same time the independent latching takes effect and holds the NC contacts in open position. This prevents the machine parts from continuing to run out of control or from being restarted.

After the hazard is eliminated, the machine can only be restarted after manually releasing the switch using a pushbutton on the top of the enclosure. The contacts are then released again and return to their initial position (the NO contacts are open and the NC contacts are closed).

## Technical specifications

| Type | | 3SE29 | 3SE39 |
|---|---|---|---|
| **Metal and plastic enclosures** | | | |
| **Standards** | | IEC 60947-5-1 | |
| **Electrical load** | | | |
| • At AC-15, 400 V | | | |
| - 1 NO + 1 NC | A | 10 | -- |
| - 2 NO + 2 NC | A | 6 | -- |
| - 3SE2924-3AA20 (2 NO + 2 NC) | A | 10 | -- |
| • At 250 V AC | A | – | 5 |
| **Short-circuit protection** | | | |
| - 1 NO + 1 NC | A | 10 (slow) | -- |
| - 2 NO + 2 NC | A | 6 (slow) | -- |
| - 3SE2924-3AA20 (2 NO + 2 NC) | A | 10 (slow) | -- |
| - 1 CO | A | -- | 5 (slow) |
| **Mechanical endurance** | | > $10^6$ operating cycles | |
| **Material** | | | |
| • Enclosures | | Aluminum casting | Impact-resistant thermoplast, self-extinguishing according to UL 94 VO |
| • Covers | | Thermoplast | – |
| • Guard hoods | | Aluminum casting | Metal |
| **Degree of protection** | | IP65 | IP65 |
| **Ambient temperature** | °C | -25 ... +80 | -10 ... +75 |
| **Connection** | | Cable entry, metric | Cable AWG20, UL Style 2464, length 3 m |

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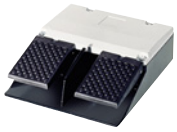
## Plastic and metal enclosures

### Selection and ordering data

| Version | Slow-action contacts for each pedal | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Metal enclosures, degree of protection IP65** | | | | | | |
| 3SE290.-.AA20 3SE291.-.AA20 | **Momentary-contact foot switches (non-latching), 1-pedal,** M20 x 1.5 cable entry | | | | | |
| • Without hood | 1 NO + 1 NC ➔ | **3SE2902-0AB20** | | 1 | 1 unit | 41K |
| | 2 NO + 2 NC ➔ | **3SE2903-1AB20** | | 1 | 1 unit | 41K |
| • With hood | 1 NO + 1 NC ➔ | **3SE2902-0AA20** | | 1 | 1 unit | 41K |
| | 2 NO + 2 NC ➔ | **3SE2903-1AA20** | | 1 | 1 unit | 41K |
| | **Foot switches (latching), 1-pedal,** M20 x 1.5 cable entry | | | | | |
| • Without hood | 1 NO + 1 NC ➔ | **3SE2912-2AB20** | | 1 | 1 unit | 41K |
| • With hood | 1 NO + 1 NC ➔ | **3SE2912-2AA20** | | 1 | 1 unit | 41K |
|  3SE2932-.AB20 | **Momentary-contact foot switches (non-latching), 2-pedal,** M25 x 1.5 cable entry | | | | | |
| • Without hood | 1 NO + 1 NC ➔ | **3SE2932-0AB20** | | 1 | 1 unit | 41K |
| | 2 NO + 2 NC ➔ | **3SE2932-1AB20** | | 1 | 1 unit | 41K |
| 3SE2932-.AA20 | • With hood | 1 NO + 1 NC ➔ | **3SE2932-0AA20** | | 1 | 1 unit | 41K |
| | | 2 NO + 2 NC ➔ | **3SE2932-1AA20** | | 1 | 1 unit | 41K |
| 3SE2924-3AA20 | **Safety foot switches, 1-pedal** With hood M20 x 1.5 cable entry with interlocking function; NO closes as momentary contact type NC opens with automatic latching (safety function) | 2 NO + 2 NC ➔ | **3SE2924-3AA20** | | 1 | 1 unit | 41K |
| **Plastic enclosures, degree of protection IP65** | | | | | | |
| 3SE3934-5CB20 | **Momentary-contact pedal switches**, 3 m cable | Microswitch | | | | |
| • One pedal, without hood | | 1 CO | **3SE3902-4CB20** | | 1 | 1 unit | 41K |
| • Two pedals, without hood | | 2 x 1 CO | **3SE3934-5CB20** | | 1 | 1 unit | 41K |
| **Accessories** | | | | | | |
| | **Contact block**, Supersedes momentary-contact foot switches 3SE2903-1A.20[1] and 3SE2932-1A.20[2] | 1 NO + 1 NC | **3SE3982-0K** | | 1 | 1 unit | 41K |
| | **Contact block**, Supersedes momentary-contact foot switches 3SE2902-0A.20 and 3SE2932-0A.20[3] | 1 NO + 1 NC | **3SE3982-0L** | | 1 | 1 unit | 41K |
| | **Contact block**, 16 A Supersedes momentary-contact foot switch 3SE2924-3AA20[1] | 1 NO + 1 NC | **3SE3982-7J** | | 1 | 1 unit | 41K |

➔ Positive opening according to IEC 60947-5-1, Annex K.
Can be used with 3SK safety relays, see page 11/1 onwards.
Certificate:

1) Number of contact blocks required for the momentary-contact foot switch = 2.
2) Number of contact blocks required per pedal = 2.
3) Number of contact blocks required per pedal = 1.



*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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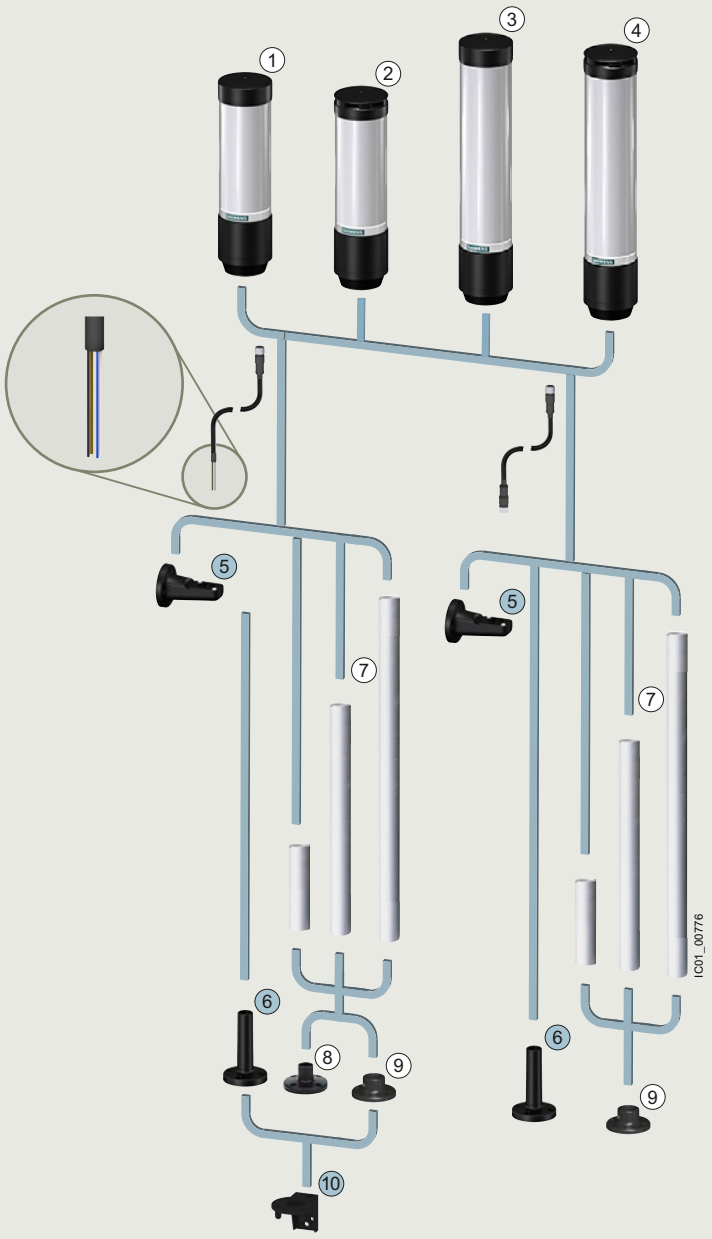
**NEW** **Electronically configurable 8WD46 signaling columns, 70 mm diameter**

## Overview




Signaling column with 9 segments

(1) Without acoustic signaling:
Conventional signaling column 8WD4613-5HH37/
Signaling column for IO-Link 8WD4613-5HH47

(2) With acoustic signaling:
Conventional signaling column 8WD4613-5JH37/
Signaling column for IO-Link 8WD4613-5JH47

Signaling column with 15 segments

(3) Without acoustic signaling:
Conventional signaling column 8WD4615-5HH37/
Signaling column for IO-Link 8WD4615-5HH47

(4) With acoustic signaling:
Conventional signaling column 8WD4615-5JH37/
Signaling column for IO-Link 8WD4615-5JH47

Accessories

(5) Bracket for wall mounting 8WD4618-0CA

(6) Foot with tube 8WD4618-0DA

(7) Tube 8WD4208-0EF/8WD4308-0E.

(8) Foot for tube mounting (≤ 400 mm) 8WD4308-0DB

(9) Foot for tube mounting (> 400 mm) 8WD4308-0DC

(10) Bracket for mounting on feet 8WD4408-0CC

Degree of protection IP66/IP69 (IP69K)

8WD46 signaling column with up to 15 segments

**More information**

Homepage, see www.siemens.com/sirius-signaling-columns
Industry Mall, see www.siemens.com/product?8WD4
Manual, see https://support.industry.siemens.com/cs/ww/en/view/109810633
Operating Instructions, see https://support.industry.siemens.com/cs/ww/en/view/109810488

Video:
SIRIUS 8WD46 signaling column – Electronics can be individually configured

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## Electronically configurable 8WD46 signaling columns, 70 mm diameter NEW

The electronically configurable 8WD46 signaling columns are flexible in design and versatile in use thanks to their new compact and electronically modular design.

Features:

- Thermoplast enclosure, diameter 70 mm
- With 9 or 15 segments (number of segments adjustable for each block)
- With or without acoustic element
- Degree of protection IP66/IP69 (IP69K)

Two product series are available:

- Conventional signaling columns
  - Configuration of signaling column via USB interface
  - Fast connection of the signaling column to the application via 8-pole M12 plug
- Signaling columns for IO-Link
  - Configuration of signaling column via IO-Link interface (IODD)
  - Fast connection of the signaling column to the application via 4-pole M12 plug

***Mounting options***

| Tube mounting | Wall mounting | Floor mounting |
|---|---|---|
| | | |
| Foot with integrated tube | Bracket for single-sided mounting | Floor mounting without accessories |

### Benefits

- Choice of various light and acoustic signals with different functions:
  Continuous light, blinklight, flashlight and rotating light; siren
- Light elements with particularly long-lasting LEDs
- Variety of colors: > 1 million colors
- Optimized homogeneous illumination thanks to improved diffuser technology
- Acoustic signals can be adjusted in tone and volume
- Extremely resistant to shock and vibrations
- Simple configuration and fast connection using M12 plugs
- No wiring required
- No special tools needed
- Fewer versions thanks to electronic modularity
- Communication-capable through connection to IO-Link

### Application

8WD46 signaling columns are used in machines or in automatic processes for monitoring complex procedures or as visual or acoustic warning devices in emergency situations, e.g. for displaying individual assembly stages.

***Communication capability***

IODD (IO Device Description)

The IO Device Description (IODD) has been defined to provide a full, transparent description of system characteristics as far as the IO-Link device. The IODD contains information on communication characteristics, device parameters, identification, process and diagnostics data.

The IODD for signaling columns for IO-Link is available at the link below, see https://support.industry.siemens.com/cs/ww/en/view/109807683.

***Connection***

Conventional signaling columns

Wiring of the signaling elements using screw or spring-loaded terminals is not required. The signaling column is connected via an 8-pole M12 plug.

Signaling columns for IO-Link

The signaling column is connected via a 4-pole M12 plug.

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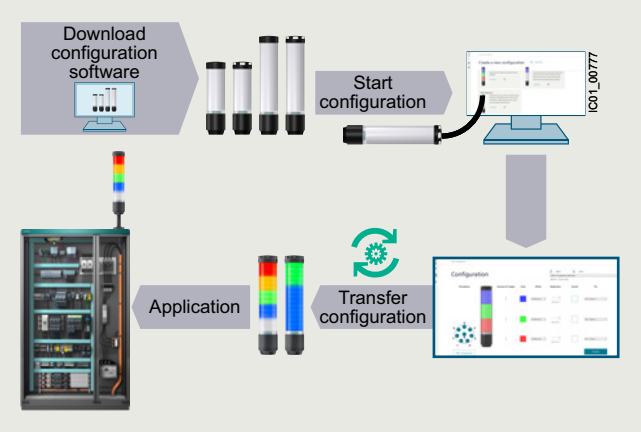
**NEW** **Electronically configurable 8WD46 signaling columns, 70 mm diameter**

### *Configuration*




Simple and fast configuration

Conventional signaling columns

Configuration options via configuration software and transfer via USB interface, see https://support.industry.siemens.com/cs/ww/en/view/109807684.

Signaling columns for IO-Link

Configuration options via IO-Link. The setting is made via the IO Device Description (IODD), see Communication capability.

Optical configuration options

| Colors | Intensity | Light pattern |
|---|---|---|
| Ten different colors<br>• Eight preset colors:<br>- Red<br>- Green<br>- Yellow<br>- Blue<br>- White<br>- Turquoise<br>- Violet<br>- Light yellow<br>• > 1 million colors can be configured | The brightness can be adjusted for each block. | Optical signal profiles:<br>• Blinklights<br>• Flashlights (single, double and triple-flash lights)<br>• Continuous lights<br>• Rotating lights<br>One light pattern per block can be selected. |

Acoustic configuration options (siren)

| Tones | Volume |
|---|---|
| Ten different tones can be set | • 80 to 105 dB<br>• Four different volume levels can be set |

### *Various operating modes*

| Signaling column mode | Automatic scaling mode | Level mode | Individual mode |
|---|---|---|---|
| | | | |

Individual configuration of light pattern, color, brightness and acoustic signals

Signaling column mode

Individual segments can be connected to form a block. The blocks have fixed positions and may be off if the corresponding block and the optical signal are not activated.

Automatic scaling mode

The segments are automatically and uniformly distributed among the number of controlled pins and status messages. If the segments cannot be uniformly distributed, the color with the highest priority will be assigned to the last segment.

Level mode

- The segments are used as level indicators.
- From 0% (all segments are switched off) up to 100% (all segments are activated).

Examples: Order progress, liquid tank, material quantity

Individual mode

Each segment can be set and controlled individually, thus allowing for a maximum range of individual signaling options.

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## Electronically configurable 8WD46 signaling columns, 70 mm diameter NEW

### Technical specifications

| Version | | Conventional signaling columns | | | | Signaling columns for IO-Link | | | |
|---|---|---|---|---|---|---|---|---|---|
| Type | | 8WD4613-5HH37 | 5JH37 | 8WD4615-5HH37 | 5JH37 | 8WD4613-5HH47 | 5JH47 | 8WD4615-5HH47 | 5JH47 |
| **General data** | | | | | | | | | |
| **Approvals** | | cULus, EAC, CE | | | | | | | |
| **Operational voltage type** | | DC | | | | | | | |
| **Operational voltage at DC** | V | 24 | | | | | | | |
| **Relative positive tolerance of the operational voltage** | % | 10 | | | | 20 | | | |
| **Relative negative tolerance of the operational voltage** | % | 10 | | | | 20 | | | |
| **Insulation voltage ($U_i$)** | V | 50 | | | | | | | |
| **Impulse withstand voltage ($U_{imp}$)** | V | 330 | | | | | | | |
| **Operational current** | mA | 335 | 405 | 555 | 620 | 335 | 405 | 555 | 620 |
| **Current consumed, minimum** | mA | 65 | | 95 | | 65 | | 95 | |
| **Inrush current** | mA | 800 | | | | | | | |
| **Type of external power supply required** | | SELV/PELV extra-low voltage | | | | | | | |
| **Overvoltage category** | | I | | | | | | | |
| **Pollution degree** | | 3 | | | | | | | |
| **Letter code according to IEC 81346-2:2019** | | P | | | | | | | |
| **Equipment protection class according to IEC 61140** | | III | | | | | | | |
| **Type of interface for parameterization** | | USB-C | | | | IO-Link | | | |
| **Type of parameterization** | | Software | | | | IODD | | | |
| **Optical signal** | | | | | | | | | |
| **Light source integrated in product** | | Yes | | | | | | | |
| **Type of light source** | | RGB-LED, multi-color | | | | | | | |
| **LED service life** | h | 50 000 | | | | | | | |
| **Color of calotte** | | Clear | | | | | | | |
| **Number of light segments** | | 9 | | 15 | | 9 | | 15 | |
| **Number of settable colors** | | 1 000 000 | | | | | | | |
| **Type of optical signal** | | Blink, flash, continuous, double flash, triple flash, rotating | | | | | | | |
| **Product function: Settable optical signal** | | Yes | | | | | | | |
| **Product function: Settable luminous intensity** | | Yes | | | | | | | |
| **Default number of signal blocks** | | 3 | | 5 | | 3 | | 5 | |
| **Default type of signal blocks** | | | | | | | | | |
| • 1 | | Green/ continuous light/ 3 light segments | | White/ continuous light/ 3 light segments | | Green/ continuous light/ 3 light segments | | White/ continuous light/ 3 light segments | |
| • 2 | | Yellow/ continuous light/ 3 light segments | | Blue/ continuous light/ 3 light segments | | Yellow/ continuous light/ 3 light segments | | Blue/ continuous light/ 3 light segments | |
| • 3 | | Red/ continuous light/ 3 light segments | | Green/ continuous light/ 3 light segments | | Red/ continuous light/ 3 light segments | | Green/ continuous light/ 3 light segments | |
| • 4 | | -- | | Yellow/ continuous light/ 3 light segments | | -- | | Yellow/ continuous light/ 3 light segments | |
| • 5 | | -- | | Red/ continuous light/ 3 light segments | | -- | | Red/ continuous light/ 3 light segments | |
| **Flash frequency** | Hz | 1 | | | | | | | |
| **Blink frequency** | | | | | | | | | |
| • 1 | Hz | 1 | | | | | | | |
| • 2 | Hz | 2 | | | | | | | |
| • 3 | Hz | 3 | | | | | | | |

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**NEW** **Electronically configurable 8WD46 signaling columns, 70 mm diameter**

| Version | | Conventional signaling columns | | | | Signaling columns for IO-Link | | | |
|---|---|---|---|---|---|---|---|---|---|
| Type | | 8WD4613-5HH37 | 8WD4613-5JH37 | 8WD4615-5HH37 | 8WD4615-5JH37 | 8WD4613-5HH47 | 8WD4613-5JH47 | 8WD4615-5HH47 | 8WD4615-5JH47 |
| **Acoustic signal** | | | | | | | | | |
| **Type of acoustic signal** | | -- | Multi-tone | -- | Multi-tone | -- | Multi-tone | -- | Multi-tone |
| **Default type of acoustic signal** | | -- | Continu-ous tone | -- | Continu-ous tone | -- | Continu-ous tone | -- | Continu-ous tone |
| **Product function: Settable acoustic signal** | | No | Yes | No | Yes | No | Yes | No | Yes |
| **Service life of the acoustic signaling device** | h | -- | 5 000 | -- | 5 000 | -- | 5 000 | -- | 5 000 |
| **Volume level** | dB | -- | 80 ... 105 | -- | 80 ... 105 | -- | 80 ... 105 | -- | 80 ... 105 |
| **Default volume level** | dB | -- | 80 | -- | 80 | -- | 80 | -- | 80 |
| **Number of settable tones** | | -- | 10 | -- | 10 | -- | 10 | -- | 10 |
| **Default tone frequency** | kHz | -- | 2.7 | -- | 2.7 | -- | 2.7 | -- | 2.7 |
| **Tone frequency of alternating tone** | kHz | -- | 0.245 ... 6 | -- | 0.245 ... 6 | -- | 0.245 ... 6 | -- | 0.245 ... 6 |
| **Communication** | | | | | | | | | |
| **IO-Link mode** | | -- | | | | 24-bit output | | | |
| **Type of connectable IO device** | | -- | | | | Signaling column | | | |
| **IO-Link transfer rate** | | -- | | | | COM 3 | | | |
| **Protocol is supported IO-Link protocol** | | No | | | | Yes | | | |
| **Number of IO-Link ports** | | -- | | | | 1 | | | |
| **Point-to-point cycle time between the master and the IO-Link device, minimum** | | -- | | | | 6 | | | |
| **Enclosures** | | | | | | | | | |
| **Height** | mm | 271 | | 372 | | 271 | | 372 | |
| **Width** | mm | 72 | | | | | | | |
| **Outer diameter** | mm | ∅ 72 | | | | | | | |
| **Material** | | PC | | | | | | | |
| **Color of enclosure** | | Black | | | | | | | |
| **Mounting type** | | Floor mounting, tube mounting, bracket mounting | | | | | | | |
| **Degree of protection IP** | | IP66/IP69K | | | | | | | |
| **Degree of protection according to NEMA** | | 4/4X/12/13 | | | | | | | |
| **Type of electrical connection** | | M12 plug, 8-pole | | | | M12 plug, 4-pole | | | |
| **Ambient conditions** | | | | | | | | | |
| **Ambient temperature during operation** | °C | -30 ... +60 | | | | | | | |

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## Electronically configurable 8WD46 signaling columns, 70 mm diameter NEW

### Selection and ordering data

| | Type of acoustic signal | Number of light segments | Default number of signal blocks | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Conventional signaling columns · With M12 plug, 8-pole · 24 V DC** | | | | | | | | |
| | ***Without acoustics*** | | | | | | | |
| 8WD4613-5HH37 8WD4615-5HH37 | -- | 9 | 3 | **8WD4613-5HH37** | | 1 | 1 unit | 42K |
| | | 15 | 5 | **8WD4615-5HH37** | | 1 | 1 unit | 42K |
| | ***With acoustics*** | | | | | | | |
| 8WD4613-5JH37 8WD4615-5JH37 | Multi-tone | 9 | 3 | **8WD4613-5JH37** | | 1 | 1 unit | 42K |
| | | 15 | 5 | **8WD4615-5JH37** | | 1 | 1 unit | 42K |
| **Signaling columns for IO-Link · With M12 plug, 4-pole · 24 V DC** | | | | | | | | |
| | ***Without acoustics*** | | | | | | | |
| 8WD4613-5HH47 8WD4615-5HH47 | -- | 9 | 3 | **8WD4613-5HH47** | | 1 | 1 unit | 42K |
| | | 15 | 5 | **8WD4615-5HH47** | | 1 | 1 unit | 42K |
| | ***With acoustics*** | | | | | | | |
| 8WD4613-5JH47 8WD4615-5JH47 | Multi-tone | 9 | 3 | **8WD4613-5JH47** | | 1 | 1 unit | 42K |
| | | 15 | 5 | **8WD4615-5JH47** | | 1 | 1 unit | 42K |

13



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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**NEW** **Electronically configurable 8WD46 signaling columns, 70 mm diameter**

| | Version | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Accessories** | | | | | | | |
| 8WD4..8-0DA | **Foot with tube** | | | | | | |
| | Tube length 100 mm | | | | | | |
| | • Standard | Black | **8WD4308-0DA** | | 1 | 1 unit | 41J |
| | • Degree of protection IP66/IP69 (IP69K) | Black | **8WD4618-0DA** | | 1 | 1 unit | 42K |
| 8WD4308-0DB | **Foot, single** | | | | | | |
| | • Plastic, for tube mounting, for tube lengths ≤ 400 mm | Black | **8WD4308-0DB** | | 1 | 1 unit | 41J |
| 8WD4308-0DC | • Metal, for tube lengths > 400 mm | Black | **8WD4308-0DC** | | 1 | 1 unit | 41J |
| 8WD4208-0EF | **Tubes, single** | | | | | | |
| | • Length 100 mm | Silver | **8WD4208-0EF** | | 1 | 1 unit | 41J |
| | • Length 150 mm | Silver | **8WD4308-0EE** | | 1 | 1 unit | 41J |
| | • Length 250 mm | Silver | **8WD4308-0EA** | | 1 | 1 unit | 41J |
| | • Length 400 mm | Silver | **8WD4308-0EB** | | 1 | 1 unit | 41J |
| | • Length 1 000 mm | Silver | **8WD4308-0ED** | | 1 | 1 unit | 41J |
| 8WD4408-0CC | **Brackets for mounting on feet** | Black | **8WD4408-0CC** | | 1 | 1 unit | 41J |
| 8WD4..8-0CA | **Brackets for wall mounting** (mounting without feet and tube) | | | | | | |
| | For single-sided mounting | | | | | | |
| | • Standard | Black | **8WD4308-0CA** | | 1 | 1 unit | 41J |
| | • Degree of protection IP66/IP69 (IP69K) | Black | **8WD4618-0CA** | | 1 | 1 unit | 42K |
| 3SX5601-3SB54 | **Connecting cables** | | | | | | |
| | • Length 5 m | | | | | | |
| | - With M12 socket, 4-pole and open end | | **3SX5601-3SB54** | | 1 | 1 unit | 41K |
| 3SX5601-3SV15 | • Length 1 m | | | | | | |
| | - With M12 socket, 5-pole and M12 plug, 5-pole | | **3SX5601-3SV15** | | 1 | 1 unit | 41K |
| 3SX5601-3SV18 | - With M12 socket, 8-pole and M12 plug, 8-pole | | **3SX5601-3SV18** | | 1 | 1 unit | 41K |
| | **USB C cable** Length 3 m | | **6SL3255-0AA00-2CA0** | | 1 | 1 unit | 343 |

Further connecting cables, see pages 12/46 and 12/69.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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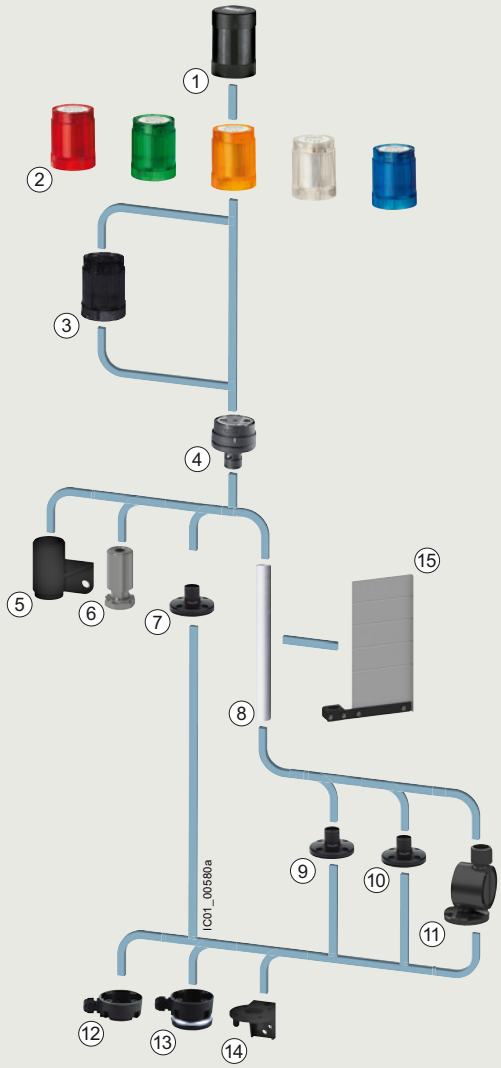
## Overview

The 8WD4 signaling columns are flexible in design and versatile in use.

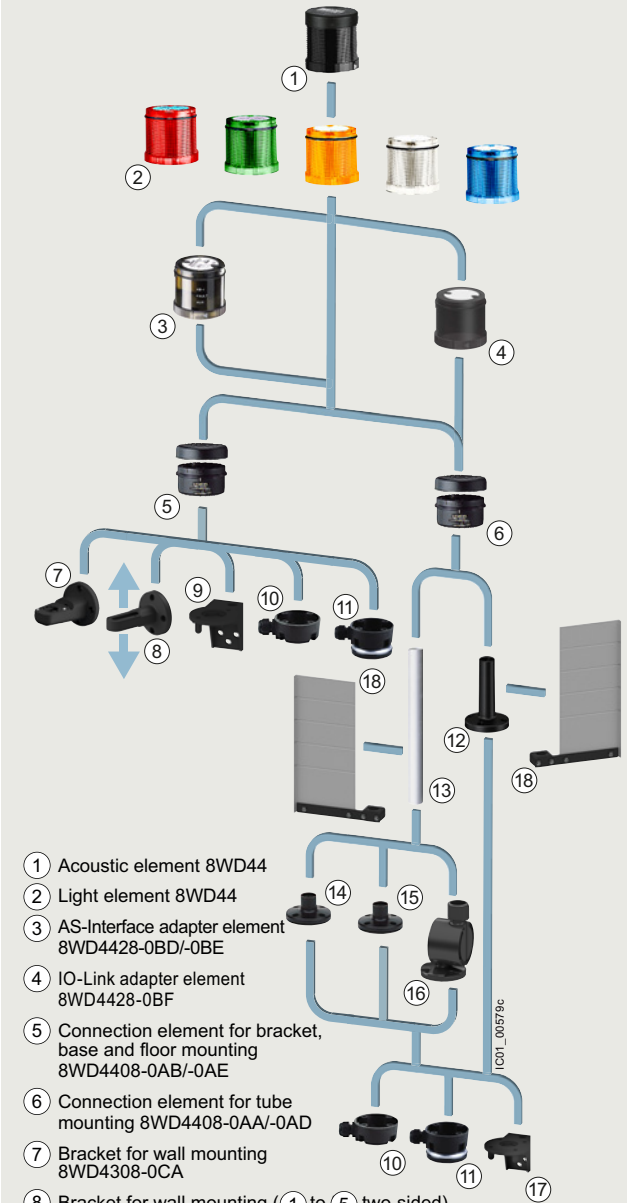
**More information**

Homepage, see www.siemens.com/sirius-signaling-columns
Industry Mall, see www.siemens.com/product?8WD4
Manual, see https://support.industry.siemens.com/cs/ww/en/view/109758131




1 Acoustic element 8WD42.0-0FA
2 Light element 8WD42
3 AS-Interface adapter element 8WD4228-0BB
4 Connection element 8WD4208-0AA
5 Bracket for wall mounting 8WD4208-0CD
6 Adapter for single-hole mounting 8WD4208-0EH
7 Foot for base mounting 8WD4208-0DE
8 Tube 8WD4208-0EF/8WD4308-0E.
9 Foot for tube mounting (≤ 400 mm) 8WD4308-0DB
10 Foot for tube mounting (> 400 mm) 8WD4308-0DC
11 Adjustable-angle foot for tube mounting 8WD4408-0DF
12 Socket 8WD4308-0DD
13 Socket (magnetic fixing) 8WD4308-0DE
14 Bracket for mounting on feet 8WD4408-0CC
15 Optional 8WD4408-0FA labeling panel

8WD42 signaling column (width 50 mm) with up to four elements




1 Acoustic element 8WD44
2 Light element 8WD44
3 AS-Interface adapter element 8WD4428-0BD/-0BE
4 IO-Link adapter element 8WD4428-0BF
5 Connection element for bracket, base and floor mounting 8WD4408-0AB/-0AE
6 Connection element for tube mounting 8WD4408-0AA/-0AD
7 Bracket for wall mounting 8WD4308-0CA
8 Bracket for wall mounting (1 to 5 two-sided) 8WD4308-0CB
9 Bracket for base mounting 8WD4408-0CD
10 Socket 8WD4308-0DD
11 Socket (magnetic fixing) 8WD4308-0DE
12 Foot with tube 8WD4308-0DA
13 Tube 8WD4208-0EF/8WD4308-0E.
14 Foot for tube mounting (≤ 400 mm) 8WD4308-0DB
15 Foot for tube mounting (> 400 mm) 8WD4308-0DC
16 Adjustable-angle foot for tube mounting 8WD4408-0DF
17 Bracket for mounting on feet 8WD4408-0CC
18 Optional 8WD4408-0FA labeling panel

8WD44 signaling column (width 70 mm) with up to five elements

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Two product series are available:

- 8WD42
  - Thermoplast enclosure, diameter 50 mm
  - Degree of protection IP54
  - Up to four elements can be mounted between the connection element and the cover
- 8WD44
  - Thermoplast enclosure, diameter 70 mm
  - Advanced design and significantly improved illumination
  - Fast and flexible connection using spring-loaded terminals
  - Integrated degree of protection IP65
  - Up to five elements can be mounted between the connection element and the cover

Mounting examples for signaling columns

The illustrated examples are from the left:

- 8WD42: Cover (without No.), four light elements ②, connection element ④, tube ⑧, foot ⑨
- 8WD44: Acoustic element with cover ①, two light elements ②, connection element ⑥, foot with tube ⑫
- 8WD44: Cover (without No.), four light elements ②, AS-Interface adapter element ③, connection element ⑤, bracket for wall mounting ⑦
- 8WD44: Cover (without No.), three light elements ②, AS-Interface adapter element ③, connection element ⑥, foot with tube ⑫

Note:

The cover is supplied with the connection element.

## Benefits

- Choice of various light and acoustic elements with different functions:
  Continuous light, blinklight, flashlight and rotating light; buzzer and siren
- Light elements with particularly long-lasting LEDs
- Variety of colors: red, yellow, green, white or blue
- Optimized illumination through improved prism technology with the 8WD44
- Acoustic elements can be adjusted in tone and volume
- Extremely resistant to shock and vibrations
- Easy connection and quick lamp change with secure bayonet mechanism
- Communication capability through connection to AS-Interface
- Communication capability through connection to IO-Link for 8WD44 only

## Application

8WD4 signaling columns are used in machines or in automatic processes for monitoring complex procedures or as visual or acoustic warning devices in emergency situations, e.g. for displaying individual assembly stages.

### *Communication capability*

Connection to AS-Interface

The 8WD4 signaling columns can be directly connected to the AS-Interface bus system through an adapter element that can be integrated in the column. Wiring outlay is reduced as the result. The two-wire bus cable is fixed to the terminals in the connection element. Up to four signaling elements can be mounted on it using an adapter element.

A/B technology enables the connection of up to 62 slaves on one AS-Interface system.

IODD (IO Device Description)

The IO Device Description (IODD) has been defined to provide a full, transparent description of system characteristics as far as the IO-Link device. The IODD contains information on communication characteristics, device parameters, identification, process and diagnostics data.

The IODD is available under IO-Link Device Definition, see https://support.industry.siemens.com/cs/ww/en/view/109761427.

### *Connection*

The signaling elements are wired up using terminals in the connection element, screw terminals on the 8WD42 and screw or spring-loaded terminals on the 8WD44.

Cable outlet

The connecting cables can be guided either downwards or sideways through the cable gland using an adapter that can be screwed under the foot. This makes wiring easier if there is no access from below.

Connection to AS-Interface

8WD42

The two-wire bus cable is fixed to the screw terminals in the connection element. The adapter element must be the first module to be mounted on the connection element. A maximum of four signaling elements can then be mounted on it.

The 8WD4228-0BB adapter element is a standard slave.

8WD44

The two-wire bus cable is fixed to the screw or spring-loaded terminals in the connection element. The adapter element must be the first module to be mounted on the connection element. The signaling elements can then be mounted on it.

The 8WD4428-0BE adapter element is a standard slave.
A maximum of four signaling elements can be mounted on it.

The 8WD4428-0BD adapter element with A/B technology enables the connection of up to 62 slaves on one AS-Interface system. The addressing socket provides user-friendly parameterization of the AS-Interface elements. A maximum of three signaling elements can be mounted on it.

Connection to IO-Link

8WD4428-0BF

The 8WD44 signaling columns are directly connected to the IO-Link system using an IO-Link adapter element that can be integrated in the column and can accommodate up to five light elements.

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## Technical specifications

| Type | | 8WD42 | 8WD44 |
|---|---|---|---|
| **General data** | | | |
| **Approvals** | | UL, CSA | UL, CSA |
| **Light and acoustic elements** | | | |
| **Rated voltage, power consumption** | | | |
| Light elements with incandescent lamp | | (AC values for 50/60 Hz) | (AC values for 50/60 Hz) |
| • Continuous lights | | 12 V, 24 V, 115 V, 230 V AC/DC | 12 V, 24 V, 115 V, 230 V AC/DC |
| • Blinklights | | 24 V AC/DC/125 mA;<br>115 V AC/20 mA; 230 V AC/15 mA | 24 V AC/DC/125 mA;<br>115 V AC/20 mA; 230 V AC/15 mA |
| • Flashlights | | 24 V DC/125 mA | 24 V DC/125 mA;<br>115 V AC/20 mA; 230 V AC/35 mA |
| • Max. inrush current, blinklights/flashlights | | -- | 500 mA |
| Light elements with integrated LED | | | |
| • Continuous lights | | 24 V AC/DC/30 mA;<br>115 V AC/25 mA; 230 V AC/35 mA | 24 V AC/DC/40 mA;<br>115 V AC/25 mA; 230 V AC/35 mA |
| • Blinklights | | 24 V AC/DC/35 mA;<br>115 V AC/25 mA; 230 V AC/35 mA | 24 V AC/DC/30 mA |
| • Rotating lights | | -- | 24 V AC/DC/70 mA |
| Acoustic elements | | | |
| • Buzzer element<br>(tone: pulsating or continuous tone) | | 85 dB:<br>24 V AC/DC/30 mA;<br>115 V AC/DC/35 mA; 230 V AC/35 mA | 85 dB:<br>24 V AC/DC/25 mA;<br>115 V AC/25 mA; 230 V AC/25 mA |
| • Siren element<br>(8 tones + volume can be set, 102 dB) | | -- | 24 V AC/DC/80 mA;<br>115 V AC/30 mA; 230 V AC/16 mA |
| • Siren element (95 ... 105 dB) | | -- | 24 V DC/100 mA |
| **Power consumption** | | | |
| • Incandescent lamp, BA15d base | W | Max. 5 | 7 |
| • Flashlights, flash energy | Ws | -- | 2 |
| **Service life** | | | |
| • Flashlights | | -- | $4 \times 10^6$ flashes |
| **AS-Interface adapter elements** | | | |
| **IO code/ID code** | | 8/F | 8/E |
| **Power supply** | | Through bus cable | Through bus cable |
| • Operational voltage | V | 18.5 … 31.6 | 18.5 … 31.6 |
| • Power consumption $I_{max}$ | mA | 50 | 100 |
| **Protective measures** | | | |
| • Watchdog | | ✓ | ✓ |
| • Short-circuit/overload protection | | External back-up fuse M 1.6 A | ✓ |
| • Reverse polarity protection | | ✓ | ✓ |
| • Induction protection | | N/A | ✓ |
| **Outputs** | | 4 relay outputs | 3 solid-state outputs |
| • Load voltage | | External auxiliary voltage | Through bus cable or external auxiliary voltage, selectable |
| | V | 0 … 30 DC | |
| | V | 0 ... 230 AC | |
| • Current-carrying capacity $\Sigma I_{max}$ | | | |
| - With external auxiliary voltage | A | 1.5 | 0.3 |
| - Without external auxiliary voltage | A | -- | 0.2 |
| **Operating temperature** | °C | -20 … +50 | -20 … +50 |
| **Enclosures** | | | |
| **Enclosure material** | | Thermoplast (polyamide), impact-resistant, black | Thermoplast (polyamide), impact-resistant, black |
| **Light elements** | | Thermoplast (polycarbonate) | Thermoplast (polycarbonate) |
| **Mounting** | | | |
| • Horizontal (base mounting, foot with 25 mm diameter tube) | | ✓ | ✓ |
| • Horizontal (single-hole mounting) | | ✓ | -- |
| • Vertical with bracket | | ✓ | ✓ |
| **Degree of protection** | | | |
| • Light elements | | IP54 | IP65 (seal premounted with every module) |
| • Acoustic elements, AS-i adapter elements | | IP54 | IP65 |
| **Operating temperature** | °C | -20 … +50 | -20 … +50 |
| **Connection** | | M3 screw terminals | Spring-loaded terminals/M3 screw terminals |
| • Conductor cross-sections | $mm^2$ | Max. 2.5 | Max. 2.5 |
| • Tightening torque | Nm | Max. 0.4 | --/max. 0.4 |

✓ Available -- Not available

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## Overview

Features:

- Thermoplast enclosure, diameter 50 mm
- Degree of protection IP54
- Up to four elements can be mounted between the connection element and the cover

## Selection and ordering data

| | Version | Rated voltage | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **Acoustic elements**[1] | | | | | | | | |
| 8WD4220-0FA | **Buzzer elements,** 85 dB, tone frequency approx. 2 300 Hz, pulsating or continuous tone, settable by means of a wire jumper | 24 AC/DC | Black | **8WD4220-0FA** | | 1 | 1 unit | 41J |
| | | 115 AC/DC | Black | **8WD4240-0FA** | | 1 | 1 unit | 41J |
| | | 230 AC | Black | **8WD4250-0FA** | | 1 | 1 unit | 41J |
| **Light elements for incandescent lamp/LED, BA15d base**[2] | | | | | | | | |
| 8WD4200-1AD | **Continuous light elements** | 24 ... 230 AC/DC | Red | **8WD4200-1AB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4200-1AC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4200-1AD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4200-1AE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4200-1AF** | | 1 | 1 unit | 41J |
| **Light elements with integrated LED** | | | | | | | | |
| 8WD4220-5AB | **Continuous light elements** | 24 AC/DC | Red | **8WD4220-5AB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4220-5AC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4220-5AD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4220-5AE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4220-5AF** | | 1 | 1 unit | 41J |
| 8WD4240-5AC | | 115 AC | Red | **8WD4240-5AB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4240-5AC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4240-5AD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4240-5AE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4240-5AF** | | 1 | 1 unit | 41J |
| | | 230 AC | Red | **8WD4250-5AB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4250-5AC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4250-5AD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4250-5AE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4250-5AF** | | 1 | 1 unit | 41J |
| 8WD4220-5BD | **Blinklight elements** | 24 AC/DC | Red | **8WD4220-5BB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4220-5BC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4220-5BD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4220-5BE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4220-5BF** | | 1 | 1 unit | 41J |
| 8WD4240-5BE | | 115 AC | Red | **8WD4240-5BB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4240-5BC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4240-5BD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4240-5BE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4240-5BF** | | 1 | 1 unit | 41J |
| 8WD4250-5BF | | 230 AC | Red | **8WD4250-5BB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4250-5BC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4250-5BD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4250-5BE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4250-5BF** | | 1 | 1 unit | 41J |
| | **Flashlight elements** | 24 DC | Red | **8WD4220-0CB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4220-0CC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4220-0CD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4220-0CE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4220-0CF** | | 1 | 1 unit | 41J |
| **Adapter elements for AS-Interface** | | | | | | | | |
| 8WD4228-0BB | **AS-Interface adapter elements** With external auxiliary voltage | For 4 signaling elements 24 V DC | Black | **8WD4228-0BB** | | 1 | 1 unit | 41J |

[1] One acoustic element can be mounted per signaling column. The cover is included in the scope of supply of the acoustic elements and fixed in place.

[2] The lamp is not included in the scope of supply. Please order separately, see page 13/174.

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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| | Version | Rated voltage | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **Connection elements** | | | | | | | | |
| 8WD4208-0AA | **Connection elements with cover**<br>For tube, floor and bracket mounting<br>Necessary for assembling the signaling column | -- | Black | **8WD4208-0AA** | | 1 | 1 unit | 41J |
| **Mounting** | | | | | | | | |
| | **Foot, single** | | | | | | | |
| 8WD4308-0DB | • Plastic, for tube mounting, for tube lengths ≤ 400 mm | -- | Black | **8WD4308-0DB** | | 1 | 1 unit | 41J |
| | • Metal, for tube lengths > 400 mm | -- | Black | **8WD4308-0DC** | | 1 | 1 unit | 41J |
| | • Plastic, for base mounting (without tube) | -- | Black | **8WD4208-0DE** | | 1 | 1 unit | 41J |
| 8WD4408-0DF | **Adjustable-angle feet**<br>For positioning in 7.5° increments[1]<br>Plastic, for tube mounting (including rubber seal) | -- | Black | **8WD4408-0DF** | | 1 | 1 unit | 41J |
| | **Tubes, single** | | | | | | | |
|  8WD4208-0EF | • Length 100 mm | -- | Silver | **8WD4208-0EF** | | 1 | 1 unit | 41J |
| | • Length 150 mm | -- | Silver | **8WD4308-0EE** | | 1 | 1 unit | 41J |
| | • Length 250 mm | -- | Silver | **8WD4308-0EA** | | 1 | 1 unit | 41J |
| | • Length 400 mm | -- | Silver | **8WD4308-0EB** | | 1 | 1 unit | 41J |
| | • Length 1 000 mm | -- | Silver | **8WD4308-0ED** | | 1 | 1 unit | 41J |
| | **Sockets for feet** | | | | | | | |
| 8WD4308-0DD | • Side cable outlet (can also be used without feet) | -- | Black | **8WD4308-0DD** | | 1 | 1 unit | 41J |
| 8WD4308-0DE | • Side cable outlet, with magnetic fixing[2] | -- | Black | **8WD4308-0DE** | | 1 | 1 unit | 41J |
| 8WD4408-0CC | **Brackets for mounting on feet** | -- | Black | **8WD4408-0CC** | | 1 | 1 unit | 41J |
| 8WD4208-0CD | **Brackets for wall mounting** (plastic)<br>Mounting without feet and tube | -- | Black | **8WD4208-0CD** | | 1 | 1 unit | 41J |
| 8WD4208-0EH | **Adapters for single-hole mounting**<br>Mounting without feet and tube, with M18 thread and fixing nut | -- | Silver | **8WD4208-0EH** | | 1 | 1 unit | 41J |
| **Lamps** | | | | | | | | |
| | **Incandescent lamps, 5 W** | | | | | | | |
| 8WD4328-1XX | BA15d base | 24 AC/DC | Clear | **8WD4328-1XX** | | 1 | 10 units | 41J |
| | | 115 AC | Clear | **8WD4348-1XX** | | 1 | 10 units | 41J |
| | | 230 AC | Clear | **8WD4358-1XX** | | 1 | 10 units | 41J |
| | **LEDs** | | | | | | | |
| 8WD4428-6XB | BA15d base | 24 AC/DC | Red | **8WD4428-6XB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4428-6XC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4428-6XD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4428-6XE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4428-6XF** | | 1 | 1 unit | 41J |
| | | 115 AC | Red | **8WD4448-6XB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4448-6XC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4448-6XD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4448-6XE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4448-6XF** | | 1 | 1 unit | 41J |
| | | 230 AC | Red | **8WD4458-6XB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4458-6XC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4458-6XD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4458-6XE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4458-6XF** | | 1 | 1 unit | 41J |

[1] Markings for 30°, 45°, 60° and 90°.

[2] For horizontal mounting, only 1 element is recommended.

Labeling panels, see 8WD44 signaling columns, page 13/179.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

Features:

- Thermoplast enclosure, diameter 70 mm
- Advanced design and significantly improved illumination
- Fast and flexible connection using spring-loaded terminals
- Integrated degree of protection IP65
- Up to five elements can be mounted

## Selection and ordering data

| | Version | Rated voltage | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **Acoustic elements**[1] | | | | | | | | |
| 8WD4240-0FA | **Buzzer elements** 85 dB, pulsating or continuous tone, settable by means of a wire jumper | 24 AC/DC | Black | **8WD4420-0FA** | | 1 | 1 unit | 41J |
| | | 115 AC | Black | **8WD4440-0FA** | | 1 | 1 unit | 41J |
| | | 230 AC | Black | **8WD4450-0FA** | | 1 | 1 unit | 41J |
| | **Siren elements**, multi-tone, 102 dB, 8 tones and volume can be set | 24 AC/DC | Black | **8WD4420-0EA2** | | 1 | 1 unit | 41J |
| | | 115 AC | Black | **8WD4440-0EA2** | | 1 | 1 unit | 41J |
| | | 230 AC | Black | **8WD4450-0EA2** | | 1 | 1 unit | 41J |
| 8WD4420-0EA | **Siren elements,** 95 ... 105 dB, IP65, alternating continuous tone | 24 DC | Black | **8WD4420-0EA** | | 1 | 1 unit | 41J |
| **Light elements for incandescent lamp/LED, BA15d base**[2] | | | | | | | | |
| 8WD4400-1AD | **Continuous light elements** | 12 ... 230 AC/DC | Red | **8WD4400-1AB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4400-1AC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4400-1AD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4400-1AE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4400-1AF** | | 1 | 1 unit | 41J |
| **Light elements with integrated flash lamp**[3] | | | | | | | | |
| 8WD4420-0CB | **Flashlight elements** with integrated electronic flash | 24 DC | Red | **8WD4420-0CB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4420-0CC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4420-0CD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4420-0CE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4420-0CF** | | 1 | 1 unit | 41J |
| 8WD4440-0CC | | 115 AC | Red | **8WD4440-0CB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4440-0CC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4440-0CD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4440-0CE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4440-0CF** | | 1 | 1 unit | 41J |
| 8WD4450-0CF | | 230 AC | Red | **8WD4450-0CB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4450-0CC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4450-0CD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4450-0CE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4450-0CF** | | 1 | 1 unit | 41J |

1) One acoustic element can be mounted per signaling column. The cover is included in the scope of supply of the acoustic elements and fixed in place.

2) The lamp is not included in the scope of supply. Please order separately.

3) The lamp is included in the scope of supply.

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| | Version | Rated voltage | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **Complete units, signaling columns** | | | | | | | | |
| 8WD4423-5AK05-0AF0 | 3-stage<br>Top: Continuous light, blue<br>Center: Continuous light, green, with integrated LED<br>Bottom: Flashlight element, clear, integrated electronic flashlight<br>Connection element for tube mounting, tube, 250 mm, foot, plastic | 24 DC | Blue, Green, Clear | **8WD4423-5AK05-0AF0** | | 1 | 1 unit | 41J |
| 8WD4423-5AK05-0AE0 | 3-stage<br>Top: Continuous light, yellow<br>Center: Continuous light, blue<br>Bottom: Continuous light, green, with integrated LED<br>Connection element for tube mounting, tube, 250 mm, foot, plastic | 24 AC/DC | Yellow, Blue, Green | **8WD4423-5AK05-0AE0** | | 1 | 1 unit | 41J |
| 8WD4421-0GA05-0AG0 | Connection element for tube mounting, tube, 250 mm, foot, plastic | -- | -- | **8WD4421-0GA05-0AG0** | | 1 | 1 unit | 41J |

13



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | Rated voltage | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **Light elements with integrated LED** | | | | | | | | |
| 8WD4420-5AB | **Continuous light elements** | 24 AC/DC | Red | **8WD4420-5AB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4420-5AC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4420-5AD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4420-5AE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4420-5AF** | | 1 | 1 unit | 41J |
| 8WD4440-5AC | | 115 AC | Red | **8WD4440-5AB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4440-5AC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4440-5AD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4440-5AE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4440-5AF** | | 1 | 1 unit | 41J |
| 8WD4450-5AD | | 230 AC | Red | **8WD4450-5AB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4450-5AC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4450-5AD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4450-5AE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4450-5AF** | | 1 | 1 unit | 41J |
| 8WD4420-5BF | **Blinklight elements** | 24 AC/DC | Red | **8WD4420-5BB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4420-5BC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4420-5BD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4420-5BE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4420-5BF** | | 1 | 1 unit | 41J |
| 8WD4440-5BE | | 115 AC | Red | **8WD4440-5BB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4440-5BC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4440-5BD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4440-5BE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4440-5BF** | | 1 | 1 unit | 41J |
| 8WD4450-5BB | | 230 AC | Red | **8WD4450-5BB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4450-5BC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4450-5BD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4450-5BE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4450-5BF** | | 1 | 1 unit | 41J |
| 8WD4420-5DD | **Rotating light elements** | 24 AC/DC | Red | **8WD4420-5DB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4420-5DC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4420-5DD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4420-5DE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4420-5DF** | | 1 | 1 unit | 41J |
| **Adapter elements for AS-Interface and IO-Link** | | | | | | | | |
| | | 24 V DC | | | | | | |
| 8WD4428-0BD | **AS-Interface adapter elements** With/without external auxiliary voltage, switchable | | | | | | | |
| | • A/B technology | For 3 signaling elements | Black | **8WD4428-0BD** | | 1 | 1 unit | 41J |
| | • Standard AS-i | For 4 signaling elements | Black | **8WD4428-0BE** | | 1 | 1 unit | 41J |
| 8WD4428-0BF | **IO-Link adapter element** | For 5 signaling elements | Black | **8WD4428-0BF** | | 1 | 1 unit | 41J |

13

* You can order this quantity or a multiple thereof.
**Illustrations are approximate**

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## 8WD42 and 8WD44 signaling columns > 8WD44 signaling columns, 70 mm diameter

| | Version | Color | Screw terminals<br>Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Connection elements**[1] | | | | | | | |
| 8WD4408-0AA | **Connection elements with cover** | | | | | | |
| | • For tube mounting | Black | **8WD4408-0AA** | | 1 | 1 unit | 41J |
| | • For bracket, base and floor mounting | Black | **8WD4408-0AB** | | 1 | 1 unit | 41J |
| | | | **Spring-loaded terminals** | | | | |
| | • For tube mounting | Black | **8WD4408-0AD** | | 1 | 1 unit | 41J |
| | • For bracket, base and floor mounting | Black | **8WD4408-0AE** | | 1 | 1 unit | 41J |
| | **Cover** (replacement) | Black | **8WD4408-0XA** | | 1 | 1 unit | 41J |

[1] The connection element with cover is an essential part for assembling the signaling columns.

| | Version | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Mounting** | | | | | | | |
| 8WD4308-0DA | **Foot with tube**<br>Tube length 100 mm | Black | **8WD4308-0DA** | | 1 | 1 unit | 41J |
| | **Foot, single** | | | | | | |
| 8WD4308-0DB | • Plastic, for tube mounting, for tube lengths ≤ 400 mm | Black | **8WD4308-0DB** | | 1 | 1 unit | 41J |
| | • Metal, for tube lengths > 400 mm | Black | **8WD4308-0DC** | | 1 | 1 unit | 41J |
| 8WD4408-0DF | **Adjustable-angle feet**<br>For positioning in 7.5° increments[1]<br>Plastic, for tube mounting (including rubber seal) | Black | **8WD4408-0DF** | | 1 | 1 unit | 41J |
| | **Tubes, single** | | | | | | |
|  8WD4208-0EF | • Length 100 mm | Silver | **8WD4208-0EF** | | 1 | 1 unit | 41J |
| | • Length 150 mm | Silver | **8WD4308-0EE** | | 1 | 1 unit | 41J |
| | • Length 250 mm | Silver | **8WD4308-0EA** | | 1 | 1 unit | 41J |
| | • Length 400 mm | Silver | **8WD4308-0EB** | | 1 | 1 unit | 41J |
| | • Length 1 000 mm | Silver | **8WD4308-0ED** | | 1 | 1 unit | 41J |
| | **Sockets for feet** | | | | | | |
| 8WD4308-0DD | • Side cable outlet (can also be used without feet) | Black | **8WD4308-0DD** | | 1 | 1 unit | 41J |
| 8WD4308-0DE | • Side cable outlet, with magnetic fixing[2] | Black | **8WD4308-0DE** | | 1 | 1 unit | 41J |
| 8WD4308-0CA | **Brackets for wall mounting**<br>(mounting without feet and tube)<br>• For single-sided mounting | Black | **8WD4308-0CA** | | 1 | 1 unit | 41J |
| 8WD4308-0CB | • For double-sided mounting | Black | **8WD4308-0CB** | | 1 | 1 unit | 41J |

[1] Markings for 30°, 45°, 60° and 90°.

[2] For horizontal mounting, only one element is recommended.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| | Version | | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| **Mounting** | | | | | | | | |
| 8WD4408-0CC | **Brackets for mounting on feet** | | Black | **8WD4408-0CC** | | 1 | 1 unit | 41J |
| 8WD4408-0CD | **Brackets for base mounting**<br>Mounting without feet and tube | | Black | **8WD4408-0CD** | | 1 | 1 unit | 41J |
| | **Adapter for tube mounting according to NPT**<br>Mounting on tube, ∅ 25 mm, with NPT 1/2" thread | | Black | **8WD4308-0DF** | | 1 | 1 unit | 41J |

| | Version | Rated voltage | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|---|
| | | V | | | | | | |
| **Lamps** | | | | | | | | |
| 8WD4328-1XX | **Incandescent lamps, 5 W** | | | | | | | |
| | BA15d base | 24 AC/DC | Clear | **8WD4328-1XX** | | 1 | 10 units | 41J |
| | | 115 AC | Clear | **8WD4348-1XX** | | 1 | 10 units | 41J |
| | | 230 AC | Clear | **8WD4358-1XX** | | 1 | 10 units | 41J |
| 8WD4428-6XE | **LEDs** | | | | | | | |
| | BA15d base | 24 AC/DC | Red | **8WD4428-6XB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4428-6XC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4428-6XD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4428-6XE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4428-6XF** | | 1 | 1 unit | 41J |
| | | 115 AC | Red | **8WD4448-6XB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4448-6XC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4448-6XD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4448-6XE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4448-6XF** | | 1 | 1 unit | 41J |
| | | 230 AC | Red | **8WD4458-6XB** | | 1 | 1 unit | 41J |
| | | | Green | **8WD4458-6XC** | | 1 | 1 unit | 41J |
| | | | Yellow | **8WD4458-6XD** | | 1 | 1 unit | 41J |
| | | | Clear | **8WD4458-6XE** | | 1 | 1 unit | 41J |
| | | | Blue | **8WD4458-6XF** | | 1 | 1 unit | 41J |
| **Inscriptions for 8WD42 and 8WD44** | | | | | | | | |
| 8WD4408-0FA | **Labeling panels**<br>With fixing accessories, for mounting on ∅ 25 mm tube<br>Inscription area/ step 50 mm x 140 mm<br>Suitable for standard labels, e.g.<br>• Zweckform 3425<br>• Herma 4457 | -- | -- | **8WD4408-0FA** | | 1 | 1 unit | 41J |

13

*** You can order this quantity or a multiple thereof.**
**Illustrations are approximate**

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## 8WD53 integrated signal lamps, 70 mm diameter

### Overview

8WD53 integrated signal lamps

| More information |
|---|
| Homepage, see www.siemens.com/sirius-command |
| Industry Mall, see www.siemens.com/product?8WD5 |
| Configuration Manual, see https://support.industry.siemens.com/cs/ww/en/view/107194954 |

#### *Design*

Features:

- Thermoplast enclosures, diameter 70 mm
- Degree of protection IP65
- Rated voltage 24 V, 115 V, 230 V AC/DC
- Ambient temperature -20 to +50 °C, incandescent lamp up to 60 °C

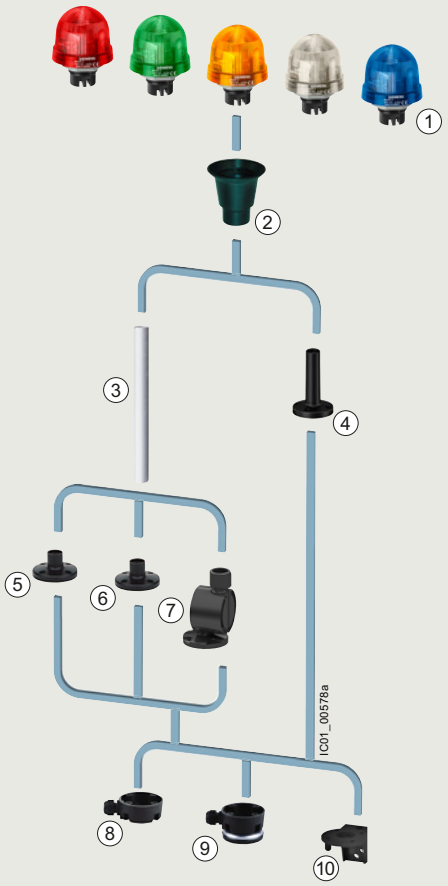
The special shape of the integrated signal lamps means that the light is emitted optimally in every direction (to the sides and upwards). Continuous lights (with incandescent lamp or LED) and flashlights are available in five colors. As well as the continuous-light version, a blinklight or rotating light version is also available.

The LED versions of the integrated signal lamps offer a considerably longer endurance than the incandescent lamp versions.

They all have the high degree of protection IP65 and are made of a material highly resistant to impact.

#### *Mounting*

8WD53 integrated signal lamps can be mounted at any point of the machine for the purpose of giving visual signals. They are mounted by means of a PG-29 screw base with nut.




1 Integrated signal lamp 8WD53
2 Tube adapter 8WD5308-0EG
3 Tube 8WD4208-0EF/8WD4308-0E.
4 Foot with tube 8WD4308-0DA
5 Foot for tube mounting (≤ 400 mm) 8WD4308-0DB
6 Foot for tube mounting (> 400 mm) 8WD4308-0DC
7 Adjustable-angle foot for tube mounting 8WD4408-0DF
8 Socket 8WD4308-0DD
9 Socket (magnetic fixing) 8WD4308-0DE
10 Bracket for mounting on feet 8WD4408-0CC

8WD53 integrated signal lamps with five elements

### Application

SIRIUS 8WD53 integrated signal lamps can be used as visual signaling devices in harsh ambient conditions and in outdoor installations.

Visual signaling devices for indicating operating conditions can be used for the following applications:

- Manufacturing plants
- Injection molding machines
- Conveyors
- Assembly systems for electronic components

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## Selection and ordering data

| Version | Rated voltage | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| | V | | | | | | |
| **Light elements for incandescent lamp/LED, BA15d base** | | | | | | | |
| 8WD5300-1AB | | | | | | | |
| **Continuous lights**[1] | 12 ... 230 AC/DC | Red | **8WD5300-1AB** | | 1 | 1 unit | 41J |
| | | Green | **8WD5300-1AC** | | 1 | 1 unit | 41J |
| | | Yellow | **8WD5300-1AD** | | 1 | 1 unit | 41J |
| | | Clear | **8WD5300-1AE** | | 1 | 1 unit | 41J |
| | | Blue | **8WD5300-1AF** | | 1 | 1 unit | 41J |
| **Light elements with integrated flash lamp** | | | | | | | |
| 8WD5320-0CC | | | | | | | |
| **Flashlights** with integrated electronic flash | 24 AC/DC | Red | **8WD5320-0CB** | | 1 | 1 unit | 41J |
| | | Green | **8WD5320-0CC** | | 1 | 1 unit | 41J |
| | | Yellow | **8WD5320-0CD** | | 1 | 1 unit | 41J |
| | | Clear | **8WD5320-0CE** | | 1 | 1 unit | 41J |
| | | Blue | **8WD5320-0CF** | | 1 | 1 unit | 41J |
| | 115 AC | Red | **8WD5340-0CB** | | 1 | 1 unit | 41J |
| | | Green | **8WD5340-0CC** | | 1 | 1 unit | 41J |
| | | Yellow | **8WD5340-0CD** | | 1 | 1 unit | 41J |
| | | Clear | **8WD5340-0CE** | | 1 | 1 unit | 41J |
| | | Blue | **8WD5340-0CF** | | 1 | 1 unit | 41J |
| 8WD5350-0CD | | | | | | | |
| | 230 AC | Red | **8WD5350-0CB** | | 1 | 1 unit | 41J |
| | | Green | **8WD5350-0CC** | | 1 | 1 unit | 41J |
| | | Yellow | **8WD5350-0CD** | | 1 | 1 unit | 41J |
| | | Clear | **8WD5350-0CE** | | 1 | 1 unit | 41J |
| | | Blue | **8WD5350-0CF** | | 1 | 1 unit | 41J |
| **Light elements with integrated LED** | | | | | | | |
| 8WD5320-5AE | | | | | | | |
| **Continuous lights** | 24 AC/DC | Red | **8WD5320-5AB** | | 1 | 1 unit | 41J |
| | | Green | **8WD5320-5AC** | | 1 | 1 unit | 41J |
| | | Yellow | **8WD5320-5AD** | | 1 | 1 unit | 41J |
| | | Clear | **8WD5320-5AE** | | 1 | 1 unit | 41J |
| | | Blue | **8WD5320-5AF** | | 1 | 1 unit | 41J |
| **Blinklights** | 24 AC/DC | Red | **8WD5320-5BB** | | 1 | 1 unit | 41J |
| | | Green | **8WD5320-5BC** | | 1 | 1 unit | 41J |
| | | Yellow | **8WD5320-5BD** | | 1 | 1 unit | 41J |
| | | Clear | **8WD5320-5BE** | | 1 | 1 unit | 41J |
| | | Blue | **8WD5320-5BF** | | 1 | 1 unit | 41J |
| 8WD5320-5DF | | | | | | | |
| **Rotating lights** | 24 AC/DC | Red | **8WD5320-5DB** | | 1 | 1 unit | 41J |
| | | Green | **8WD5320-5DC** | | 1 | 1 unit | 41J |
| | | Yellow | **8WD5320-5DD** | | 1 | 1 unit | 41J |
| | | Clear | **8WD5320-5DE** | | 1 | 1 unit | 41J |
| | | Blue | **8WD5320-5DF** | | 1 | 1 unit | 41J |

[1] Lamp not included in scope of supply, see page 13/179.

Accessories, see next page.

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## 8WD53 integrated signal lamps, 70 mm diameter

| | Version | Color | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|---|
| **Accessories required for mounting on tubes** | | | | | | | |
| 8WD5308-0EG | **Tube adapter**<br>This accessory is an essential prerequisite for use of the mounting accessories listed below. | Black | **8WD5308-0EG** | | 1 | 1 unit | 41J |
| **Mounting accessories (optional)** | | | | | | | |
| 8WD4308-0DA | **Foot with tube**<br>Tube length 100 mm | Black | **8WD4308-0DA** | | 1 | 1 unit | 41J |
| | **Foot, single** | | | | | | |
| 8WD4308-0DB | • Plastic, for tube mounting, for tube lengths ≤ 400 mm | Black | **8WD4308-0DB** | | 1 | 1 unit | 41J |
| 8WD4308-0DC | • Metal, for tube lengths > 400 mm | Black | **8WD4308-0DC** | | 1 | 1 unit | 41J |
| 8WD4408-0DF | **Adjustable-angle feet**<br>For positioning in 7.5° increments[1]<br>Plastic, for tube mounting (including rubber seal) | Black | **8WD4408-0DF** | | 1 | 1 unit | 41J |
| 8WD4208-0EF | **Tubes, single** | | | | | | |
| | • Length 100 mm | Silver | **8WD4208-0EF** | | 1 | 1 unit | 41J |
| | • Length 150 mm | Silver | **8WD4308-0EE** | | 1 | 1 unit | 41J |
| | • Length 250 mm | Silver | **8WD4308-0EA** | | 1 | 1 unit | 41J |
| | • Length 400 mm | Silver | **8WD4308-0EB** | | 1 | 1 unit | 41J |
| | • Length 1 000 mm | Silver | **8WD4308-0ED** | | 1 | 1 unit | 41J |
| | **Sockets for feet** | | | | | | |
| 8WD4308-0DD | • Side cable outlet (can also be used without feet) | Black | **8WD4308-0DD** | | 1 | 1 unit | 41J |
| 8WD4308-0DE | • Side cable outlet, with magnetic fixing[2] | Black | **8WD4308-0DE** | | 1 | 1 unit | 41J |
| 8WD4408-0CC | **Brackets for mounting on feet** | Black | **8WD4408-0CC** | | 1 | 1 unit | 41J |

[1] Markings for 30°, 45°, 60° and 90°.

[2] For horizontal mounting, only one element is recommended.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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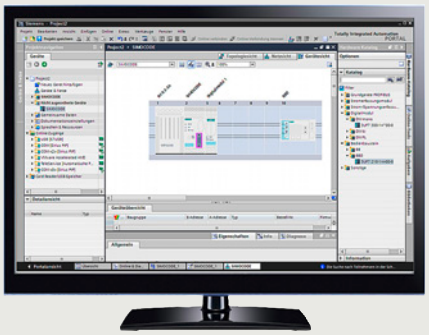


| | |
|---|---|
| | **Price groups**<br>PG 368, 41L, 42B, 42C, 42D, 42H, 42J, 42S |
| 14/2 | **Introduction** |
| 14/4 | **Simulation Tool for Soft Starters (STS)** |
| 14/5 | **SIRIUS Soft Starter ES (TIA Portal)** |
| 14/7 | **SIRIUS 3RW soft starter block library for SIMATIC PCS 7** |
| 14/10 | **Motor Starter ES** |
| 14/12 | **SIMOCODE ES (TIA Portal)** |
| 14/15 | **SIMOCODE pro block library for SIMATIC PCS 7** |
| 14/19 | **AS-Interface block library for SIMATIC PCS 7** |
| 14/22 | **SIRIUS Safety ES (TIA Portal)** |
| 14/25 | **SIRIUS Sim** |

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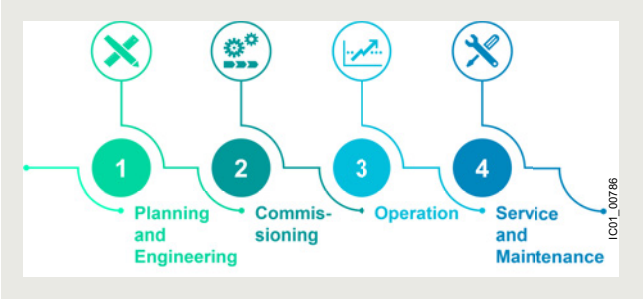
## Introduction

### Overview

**More information**

Industry Mall, see www.siemens.com/product?3ZS1

International competition, enormous cost pressure and time constraints, higher productivity and quality: Equipment and system planners and operators face a wide range of challenges in executing projects as efficiently and cost-effectively as possible. We provide extensive support in this process with our SIRIUS software applications to help users achieve the best possible results with SIRIUS products in a targeted and efficient manner.




Software applications for all phases of the project

Support provided by SIRIUS software applications is strongly oriented to the needs of the user in the specific phases of the project.

Planning

The TIA Selection Tool can be used for selection, configuration and ordering of SIRIUS products. Intelligent selection wizards check the compatibility of the configured components and enable error-free ordering, see page 7 or www.siemens.com/tst.

Assistance with standard-compliant dimensioning and electrical planning is provided by Control Panel Design (CPD). At the push of a button you receive the appropriate switching and protection devices for your motor, including standard-compliant cable cross-sections and short-circuit values for fuseless and fused load feeders, see page 8 or www.siemens.com/cpd.

Convenient soft starter design is possible using the Simulation Tool for Soft Starters (STS), see page 14/4.

Commissioning

The engineering programs of the SIRIUS ES software family are used for parameterization and commissioning of all software-configurable SIRIUS devices (such as SIMOCODE, soft starters and motor starters and 3SK2 safety relays).

The SIRIUS simulation tool can be used to quickly and easily test the generated functions and configurations in an office environment without having to be connected to any device.

The corresponding devices can also be easily and conveniently installed into the SIMATIC PCS 7 process control system with the PCS 7 block library, e.g. for SIMOCODE, soft starters, and AS-Interface. See the following individual product descriptions for details about the different packages.

Operation

Seamless embedding of SIRIUS devices in the Totally Integrated Automation Portal (TIA Portal) provides a variety of possibilities for operation and monitoring, e.g. with SIMATIC WinCC.

Linking of data to MindSphere, along with a corresponding application, also enables detailed evaluation and optimization with regard to device status and alarms and error messages.

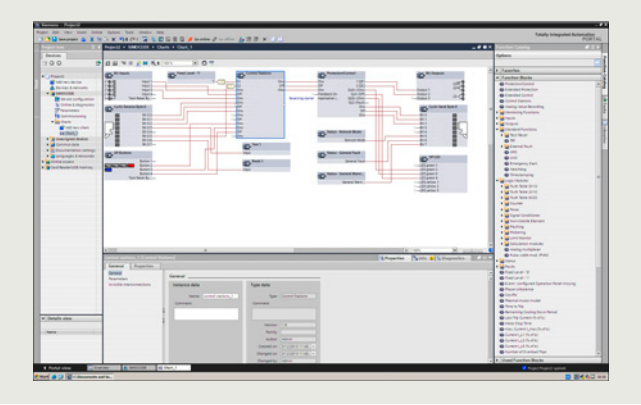
Service and maintenance

The engineering programs of the SIRIUS ES software family also provide support in this phase for diagnostics of the basic and fast SIRIUS devices and for detecting and easily eliminating faults. See the following individual product descriptions for details about the different packages.

***Engineering software***

SIRIUS ES engineering software (E-SW)

The SIRIUS ES programs, such as SIRIUS Safety ES, SIMOCODE ES or SIRIUS Soft Starter ES, are based on the central engineering framework Totally Integrated Automation Portal (TIA Portal), which provides users with a consistent, efficient and intuitive solution for all automation tasks. Thus, the TIA Portal is also the integrated working environment for the programs in the SIRIUS software family. The same operator control concept, the elimination of interfaces and a high degree of user-friendliness make it possible to quickly integrate SIRIUS devices into an automation process and start them up with the TIA Portal.



Efficient engineering and startup with graphic user interfaces and simple network and device configuration

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The SIRIUS ES programs (TIA Portal), such as SIRIUS Safety ES, SIRIUS Soft Starter ES and SIMOCODE ES, are available in two versions, which differ in terms of user-friendliness, scope of functions and price:

- Basic
  The basic variant contains all basic functions that are needed to parameterize devices. These include both parameterization functions and also operator control, diagnostics and test functions.
  It is available free of charge for downloading from the Siemens Industry Online Support Portal.
- Professional
  The Professional variants contain the complete functionality of the software packages. The functionality includes communication functions such as access via PROFIBUS/PROFINET and S7 routing.

The SIRIUS ES program Motor Starter ES is available in three versions (basic, standard, premium) which differ in their user-friendliness, scope of functions and price.

Note:

The scope of functions depends on the SIRIUS ES program, see the individual product description for details.

Types of licenses

The programs of the SIRIUS ES software family are available in the following license forms:

- Floating license – the license for any one user.
  - Authorizes any one user
  - Independent of the number of installations (unlike the single license which is allowed to be installed once only)
  - Only the actual use of the program has to be licensed
  - License for parallel use of the TIA Portal version and of Version 2007 of SIRIUS ES (combo license)
- Trial license (free use of all program functions for 14/21 days for test and evaluation purposes, included on every product CD/DVD, available in the download file of the SIRIUS ES program in the Service&Support portal).

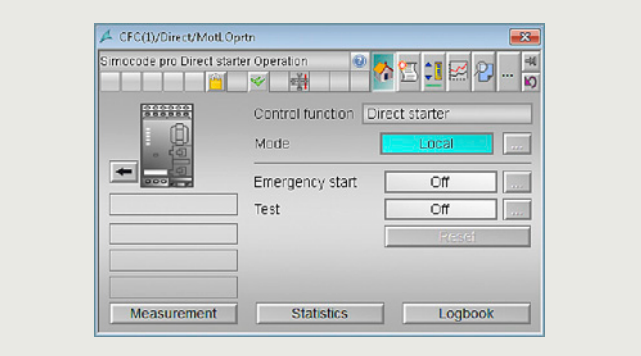
The following delivery versions are also available for a number of programs of the SIRIUS ES software family:

- Upgrade
  Switching from an old to a new version with expanded functions, e.g. upgrade from SIMOCODE ES 2007 to SIMOCODE ES V17.

Types of delivery

- License/software download
  Simply download your new software and license key from the internet via the Online Software Delivery (OSD) platform. After you have placed your order in our mall, you will receive your access data by email, which will allow you to immediately download the license or software you have ordered.
  For more information see www.siemens.com/tia-online-software-delivery.
- Software Update Service
  To keep you up to date at all times we offer a special service which automatically supplies you with all the service packs and upgrades within the SIRIUS ES (TIA Portal) range of programs.
- Package delivery
  The software is on a DVD and is delivered together with the license on a USB flash drive.

***Block libraries for SIMATIC PCS 7***




Advanced Process Library (APL) – faceplates and blocks for control of the SIMOCODE pro block library for PCS 7

The corresponding devices can be easily and conveniently installed into the SIMATIC PCS 7 process control system with the PCS 7 block library, e.g. for SIMOCODE, soft starters, and AS-Interface. PCS 7 block libraries contain the diagnostics and driver blocks corresponding with the diagnostics and driver concept of SIMATIC PCS 7 as well as the elements (symbols and faceplate) required for operator control and process monitoring.

Types of delivery and licenses

The PCS 7 block libraries supplied on CD-ROM or by license/software download allow users to run the required engineering software on the engineering station (single license) including the runtime software for executing the AS blocks in an automation system (single license). If the AS blocks are to be used in additional automation systems, the corresponding number of runtime licenses are required which are supplied without a data carrier.

***Notes on security***

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions represent only one component of such a concept.

For more information about the subject of Industrial Security, see www.siemens.com/industrialsecurity.

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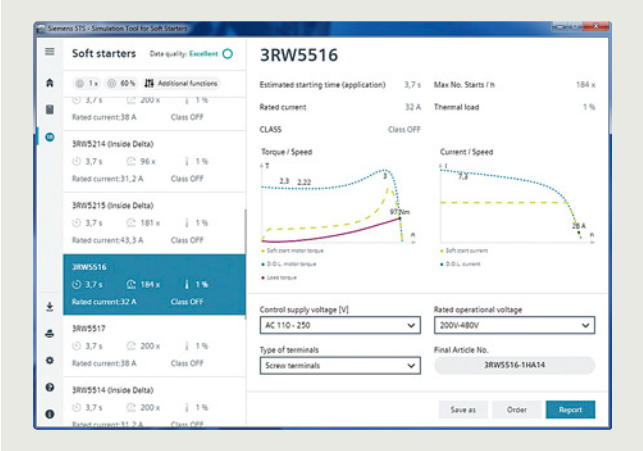
## Simulation Tool for Soft Starters (STS)

### Overview

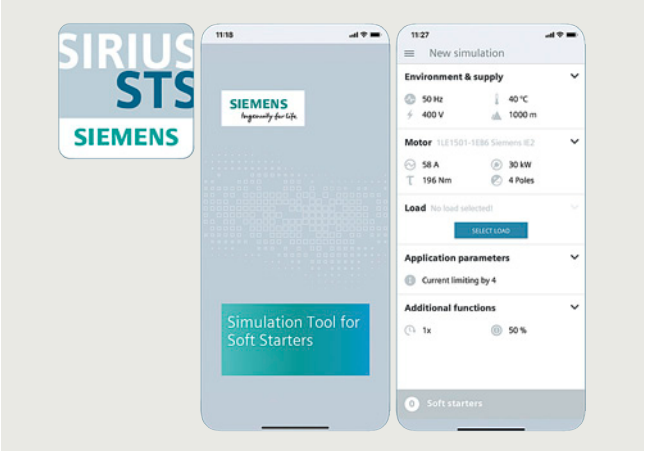



Easy input of motor and load data

**More information**

Simulation Tool for Soft Starters (STS), see https://support.industry.siemens.com/cs/ww/en/view/101494917

The Simulation Tool for Soft Starters (STS) provides a convenient means of designing soft starters using a simple, quick and easy-to-use interface. Entering the motor and load data will simulate the application and prompt suggestions for suitable soft starters.




STS app

The Simulation Tool for Soft Starters (STS) is available free of charge as a download and as an app (for Android or iOS), see "More information".

### Benefits

- Simple, quick and user-friendly operator interface
- Detailed and up-to-date Siemens motor database, including IE3 and IE4 motors
- Simulation of heavy starting up to CLASS 30
- Update-capable (e.g. motors, load types, functions)
- Fast simulations with minimum input data
- Immediate, graphical curve charts of start operations with limit values
- View in table form of suitable soft starters for the application

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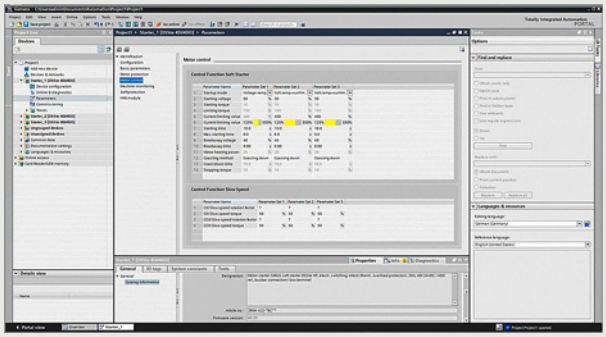
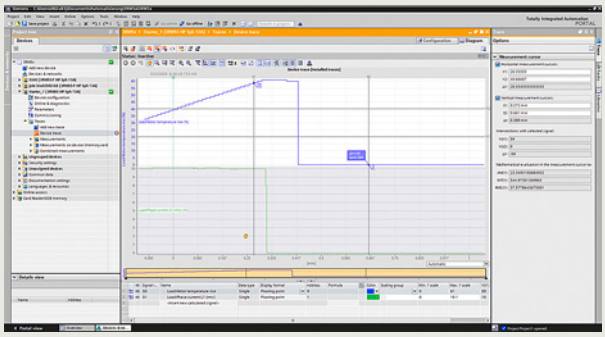
## Overview



Easy and clearly arranged parameter setting of the SIRIUS 3RW44 and 3RW55 soft starters with SIRIUS Soft Starter ES (TIA Portal)



Graphic presentation of measured values with the trace function (oscilloscope function) of SIRIUS Soft Starter ES (TIA Portal) Professional

**More information**

Technical specifications and system requirements, see https://support.industry.siemens.com/cs/ww/en/ps/24230/td

Download of the basic variant of Soft Starter ES, see https://support.industry.siemens.com/cs/ww/en/view/109793076

The SIRIUS Soft Starter ES (TIA Portal) software permits quick and easy parameterization, monitoring and diagnostics of SIRIUS 3RW44 and 3RW5 soft starters for service purposes. The device parameters can be configured directly on the PC and transferred to the soft starter through a serial cable or an optional PROFIBUS/PROFINET interface.

The powerful SIRIUS Soft Starter ES Basic tool for startup or maintenance personnel is available for downloading free of charge in the Siemens Industry Online Support, see "More information".

SIRIUS Soft Starter ES is integrated seamlessly when further TIA Portal-based software such as STEP 7 or WinCC is available, thus enabling users to achieve a consistent, efficient and intuitive solution for all automation tasks.

However, use of SIRIUS Soft Starter ES as stand-alone software also provides these advantages.

### *Efficient engineering with two program versions*

The SIRIUS Soft Starter ES (TIA Portal) software program is available in two versions, which differ in their user-friendliness, scope of functions and price.

| SIRIUS Soft Starter ES | Basic | Professional |
|---|---|---|
| Access via the local interface on the device | ✓ | ✓ |
| Parameter assignment | ✓ | ✓ |
| Operating | ✓ | ✓ |
| Diagnostics | ✓ | ✓ |
| Expert list | -- | ✓ |
| Parameter comparison | -- | ✓ |
| Service data (slave pointer, statistics data) | -- | ✓ |
| Trace | -- | ✓ |
| Access via PROFIBUS/PROFINET | -- | ✓ |
| Teleservice via MPI | ✓ | ✓ |
| Routing | -- | ✓ |
| Bulk engineering (group function) | -- | ✓ |

✓ Function available

-- Function not available

### *Additional functions*

SIRIUS Soft Starter ES offers numerous advantages of the TIA Portal that can be used in an integrated working environment.

Seamless integration

When using other TIA Portal-based software such as STEP 7 or WinCC, for example, the configuration for devices and networks for all components used is created in a standardized environment.

Working with libraries

Users can create copy templates for SIRIUS 3RW44 and 3RW55 soft starter device configuration and can manage them in global or project libraries. This way, individual modules, diagrams and complete device configurations can be saved as reusable elements for frequently occurring tasks.

Teleservice via MPI

SIRIUS Soft Starter ES (TIA Portal) supports the use of MPI Teleservice (comprising the Teleservice software and various Teleservice adapters) for remote diagnostics of the devices. This facilitates diagnostics and maintenance, and it shortens response times for service purposes.

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## SIRIUS Soft Starter ES (TIA Portal)

### Benefits

- Transparent setting of the device functions and their parameters – online and offline
- Effective diagnostics functions on the soft starter and display of the most important measured values
- Trace function (oscilloscope function) for recording measured values and events (in the SIRIUS Soft Starter ES (TIA Portal) Professional version).
- Complete transparency thanks to printout, logbook and event memory
- High degree of user-friendliness – convenient user interface, with English, German, French, Italian, Spanish and Chinese as possible operating languages
- Time savings thanks to shorter startup times
- Fast, low-cost licensing using a simple licensing procedure (available online too)

### Selection and ordering data

***SIRIUS Soft Starter ES (TIA Portal) parameterization and service software for SIRIUS 3RW44 and 3RW5 soft starters***

- Delivered without PC cable

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **SIRIUS Soft Starter ES V17 Basic** | | | | | |
| **Basic functional scope including Professional trial license**<br>Engineering software, class A,<br>6 languages (German/English/Chinese included, French/Italian/Spanish as a download),<br>online functions via system interface<br>Type of delivery:<br>Software and documentation available free of charge as a download, see https://support.industry.siemens.com/cs/ww/en/view/109793076 | | | | | |
| **SIRIUS Soft Starter ES V17 Professional** | | | | | |
| <br>3ZS1320-6CC13-0YA5 | | | | | |
| **Floating license for one user**<br>Engineering software, class A,<br>6 languages (German/English/Chinese included, French/Italian/Spanish as a download),<br>Combo license for parallel use of versions 2007 and V17 of SIRIUS ES, communication via system interface or PROFIBUS/PROFINET<br>Type of delivery: | | | | | |
| • Software and documentation on DVD and floating license on USB flash drive | **3ZS1320-6CC13-0YA5** | | 1 | 1 unit | 42H |
| • Software and documentation as a download and floating license as a download | **3ZS1320-6CE13-0YB5** | | 1 | 1 unit | 42H |
| **Upgrade for Soft Starter ES 2007 Premium**<br>Engineering software, class A,<br>6 languages (German/English/Chinese included, French/Italian/Spanish as a download),<br>Combo license for parallel use of versions 2007 and V17 of SIRIUS ES, online functions via system interface or PROFIBUS/PROFINET<br>Type of delivery: | | | | | |
| • Software and documentation on DVD and floating license on USB flash drive | **3ZS1320-6CC13-0YE5** | | 1 | 1 unit | 42H |

Notes:

Soft Starter ES Standard and Premium V14 to V15.1 licenses and Soft Starter ES V16 Professional licenses can also be used for Soft Starter ES V17 Professional.

For description of the software versions, see page 14/5.

### Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Optional accessories** | | | | | |
| <br>3RW5950-0CH00 | | | | | |
| **Optional communications modules for SIRIUS 3RW5** | | | | | |
| • PROFINET High-Feature with integrated switch | **3RW5950-0CH00** | | 1 | 1 unit | 42S |
| • PROFINET Standard | **3RW5980-0CS00** | | 1 | 1 unit | 42S |
| • PROFIBUS | **3RW5980-0CP00** | | 1 | 1 unit | 42S |
| • EtherNet/IP | **3RW5980-0CE00** | | 1 | 1 unit | 42S |
| • Modbus RTU | **3RW5980-0CR00** | | 1 | 1 unit | 42S |
| • Modbus TCP | **3RW5980-0CT00** | | 1 | 1 unit | 42S |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

**More information**

Technical specifications, see
https://support.industry.siemens.com/cs/ww/en/ps/16710/td

Overview of the available versions incl. programming manuals, Getting Started, updates and hotfixes, compatibility check

- For 3RW44, see
  https://support.industry.siemens.com/cs/ww/en/view/109760625
- For 3RW52 and 3RW55, see
  https://support.industry.siemens.com/cs/ww/en/view/109770336

The SIRIUS 3RW soft starter block library for PCS 7 can be used for simple and convenient integration of SIRIUS 3RW44, 3RW52 and 3RW55 soft starters into the SIMATIC PCS 7 process control system. The PCS 7 block library contains the diagnostics and driver blocks corresponding to the SIMATIC PCS 7 diagnostics and driver concept as well as the elements (symbols and faceplates) required for operator control and process monitoring.

### *Integrated functionality for optimal process control for all process control systems*

In addition to the general sensor technology, the motor feeder data are increasingly being integrated into the process control system. By integrating the SIRIUS 3RW44, 3RW52 and 3RW55 soft starters into the process control system it becomes possible to prevent errors in the motor feeder simply and reliably, or to detect these errors quickly and rectify them. Downtimes are reduced to a minimum or can be prevented before they happen.

For example, the output and display of the key measured values, calculated by the SIRIUS 3RW44, 3RW52 and 3RW55 soft starters is also a good aid for being able to assess and monitor the current system status.

### *Easy integration with the PCS 7 block library*

The PCS 7 block library can be used for simple and easy integration of SIRIUS 3RW44, 3RW52 and 3RW55 soft starters into the SIMATIC PCS 7 process control system. The focus here is simple configuration. Functioning of the blocks is based on the PCS 7 standard libraries and is optimally harmonized with the functions of these soft starters.

Users who have previously integrated motor feeders with conventional technology via signal blocks and motor or valve blocks or, for example, already have experience with SIMOCODE blocks, are easily able to switch to SIRIUS 3RW44, 3RW52 and 3RW55.

All blocks required for the automation systems are provided by the PCS 7 block library – as are the block symbols and faceplates for the operator station required for monitoring and control.

With the integration of the SIRIUS 3RW44, 3RW52 and 3RW55 into SIMATIC PDM, the system-wide device parameterization and diagnostics of these soft starters are possible from a central point.

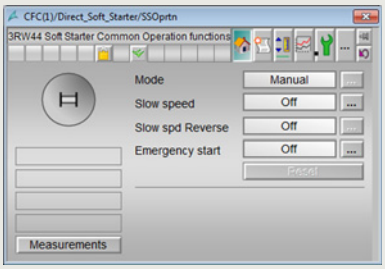
### *Motor block for direct control of the drive*

The low-voltage motors started and protected by SIRIUS 3RW44, 3RW52 and 3RW55 soft starters can be integrated into the process automation via the motor blocks. This means that they form the interface between the process control system and the motors controlled by these soft starters.

To reduce the amount of configuring work required, functions for signal processing and technological functions are integrated into one motor block.

The important measured value – the current in the motor feeder – is recorded via the soft starter and monitored for motor protection. The motor current is accessible from the I&C system via the motor blocks.

The block symbols and faceplates for the motor blocks display the motor feeders on the operator station and provide all the required information for monitoring and control as well as detailed diagnostics.



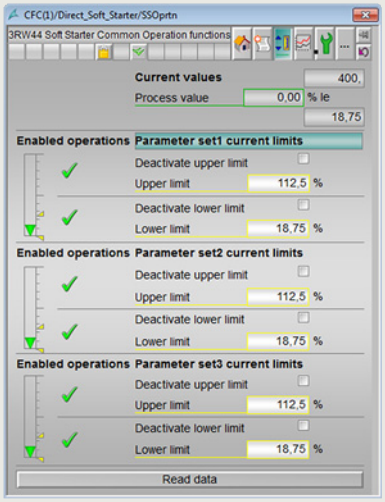

Faceplate of the motor block

### *Evaluation of additional motor feeder measurements*

All measured values calculated by the soft starter, such as current, voltage and output of the feeder, are displayed and output via the measured value blocks. A key advantage here is that where required, a wide range of information on important motor feeder measurements is available, e.g. for load monitoring.

The SIRIUS 3RW44, 3RW52 and 3RW55 soft starters are not only able to detect measured values here, but also to react if these values are exceeded or undershot, for example, via custom settings – with a motor shut-down or with a warning.

The faceplate for the measured values is accessed from the motor block faceplate.




Faceplate for measured values

### *Evaluation of maintenance-related motor feeder data*

The SIRIUS 3RW44, 3RW52 and 3RW55 soft starters have powerful functions to detect and monitor maintenance-related motor feeder data. For example, the operating and downtimes of the motor, operating cycles and overload tripping events are detected and stored directly on the device. If required, the information already on the device is available via the statistics block in the I&C system. The display is provided on a separate faceplate for the statistics block on the operator station.

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## SIRIUS 3RW soft starter block library for SIMATIC PCS 7

### Benefits

- Uniform and continuous integration into SIMATIC PCS 7
- Standardized blocks for simple integration and optimal operation
- With Advanced Process Library (APL)
- Greater process transparency due to greater information density in the I&C system
- System-wide device parameterization and diagnostics with SIMATIC PDM

### Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **SIRIUS 3RW52 and 3RW55 soft starter block library for SIMATIC PCS 7 Version V9.1 with Advanced Process Library (APL)** | | | | | |
| 3ZS1633-1XE51-0YA0 | **Engineering software V9.1**<br>For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English<br>Scope of supply:<br>AS blocks and faceplates for integrating SIRIUS 3RW52 and 3RW55 into the PCS 7 process control system with Advanced Process Library, for PCS 7 version V9.1<br>Type of delivery:<br>One license for one engineering station, one license for one automation system | | | | |
| | • Software and documentation as software download (OSD) | **3ZS1633-1XE51-0YA0** | 1 | 1 unit | 42H |
| | **Runtime license V9.1**<br>For execution of the AS blocks in an automation system (single license)<br>Required for using the AS blocks of the engineering software V9.1 on an additional automation system within a plant<br>Type of delivery:<br>One license for one automation system, without software and documentation | | | | |
| | • Certificate of License (CoL) in electronic form (OSD)[1] | **3ZS1633-2XE51-0YB0** | 1 | 1 unit | 42H |
| **SIRIUS 3RW52 and 3RW55 soft starter block library for SIMATIC PCS 7 Version V9 with Advanced Process Library (APL)** | | | | | |
| 3ZS1633-1XX50-0YA0 | **Engineering software V9.0 + SP3**<br>For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English<br>Scope of supply:<br>AS blocks and faceplates for integrating SIRIUS 3RW52 and 3RW55 into the PCS 7 process control system with Advanced Process Library, for PCS 7 version V9.0 + SP3<br>Type of delivery:<br>One license for one engineering station, one license for one automation system | | | | |
| | • Software and documentation on CD | **3ZS1633-1XX50-0YA0** | 1 | 1 unit | 42H |
| | • Software and documentation as software download (OSD) | **3ZS1633-1XE50-0YA0** | 1 | 1 unit | 42H |
| | **Runtime license V9.0 + SP3**<br>For execution of the AS blocks in an automation system (single license)<br>Required for using the AS blocks of the engineering software V9.0 + SP3 on an additional automation system within a plant<br>Type of delivery:<br>One license for one automation system, without software and documentation | | | | |
| | • Certificate of License (CoL) in paper form | **3ZS1633-2XX50-0YB0** | 1 | 1 unit | 42H |
| | • Certificate of License (CoL) in electronic form (OSD)[1] | **3ZS1633-2XE50-0YB0** | 1 | 1 unit | 42H |

[1] With a Certificate of License (CoL) in electronic form, the license is supplied via Online Software Delivery (OSD) as a PDF file. Notification of this with a download link is received by email.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **SIRIUS 3RW44 soft starter block library for SIMATIC PCS 7 version V9 with Advanced Process Library (APL)** | | | | | |
| 3ZS1633-1XX03-0YA0 | | | | | |
| **Engineering software V9**<br>For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English<br>Scope of supply:<br>AS blocks and faceplates for integrating SIRIUS 3RW44 into the PCS 7 process control system with Advanced Process Library, for PCS 7 versions V9.0+SP2<br>Type of delivery:<br>One license for one automation system, without software and documentation | | | | | |
| • Software and documentation on CD | **3ZS1633-1XX03-0YA0** | | 1 | 1 unit | 42H |
| **Runtime license V9**<br>For execution of the AS blocks in an automation system (single license)<br>Required for using the AS blocks of the engineering software V9.0+SP2 on an additional automation system within a plant<br>Type of delivery:<br>One license for one automation system, without software and documentation | | | | | |
| • Certificate of License (CoL) in paper form | **3ZS1633-2XX03-0YB0** | | 1 | 1 unit | 42H |

14

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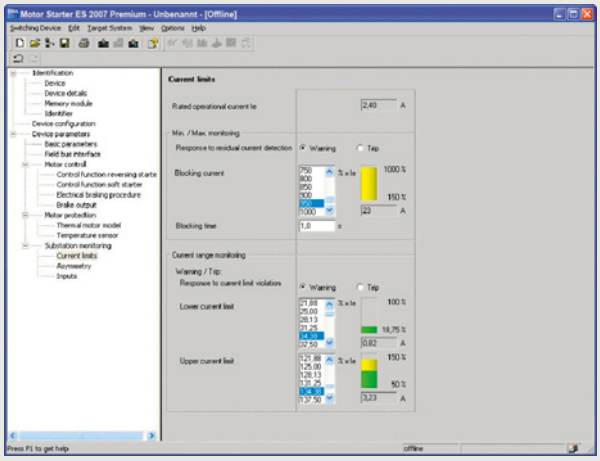
## Overview



Motor Starter ES for parameterization, monitoring, diagnostics and testing of motor starters

**More information**

Technical specifications and system requirements, see https://support.industry.siemens.com/cs/ww/en/ps/16713/td

Motor Starter ES is used for startup, parameterization, diagnostics, documentation and the preventative maintenance of the motor starters in the SIMATIC ET 200S, ET 200pro, ECOFAST and M200D product families.

Interfacing is performed

- Via the local interface on the device
- With PROFIBUS DP-V1-capable motor starters from any point in PROFIBUS
  (applies to ET 200S DP V1/ET 200pro/ECOFAST/M200D)
- With PROFINET-capable motor starters from any point in PROFINET
  (applies to ET 200S DP V1/ET 200pro/M200D).

Using Motor Starter ES, the communication-capable motor starters are easily parameterized during startup, monitored during normal operation and successfully diagnosed for service purposes. Preventive maintenance is supported by a function for reading out diverse statistical data (e.g. operating hours, operating cycles, cut-off currents, etc.). The user is supported during these procedures with comprehensive Help functions and plain text displays.

Motor Starter ES can either be used as a stand-alone program or it can be integrated into STEP 7 via an object manager.

Note:

The Motor Starter ES functionalities in relation to startup, parameterization and diagnostics are integrated directly in the TIA Portal from V17 and are accessible online for the SIMATIC ET 200pro, ET 200SP and M200D motor starters.

### *Efficient engineering with three program versions*

The Motor Starter ES software program is available in three versions which differ in their user-friendliness, scope of functions and price.

| Motor Starter ES | Basic | Standard | Premium |
|---|---|---|---|
| ET 200S High Feature PROFIBUS IM | ✓ | ✓ | ✓ |
| ET 200S High Feature PROFINET IM | ✓ | ✓ | ✓ |
| ECOFAST AS-Interface High Feature | ✓ | ✓ | -- |
| ECOFAST PROFIBUS | ✓ | ✓ | ✓ |
| ET 200pro PROFIBUS IM | ✓ | ✓ | ✓ |
| ET 200pro PROFINET IM | ✓ | ✓ | ✓ |
| M200D AS-Interface Standard | ✓ | ✓ | (✓) |
| M200D PROFIBUS | ✓ | ✓ | ✓ |
| M200D PROFINET | ✓ | ✓ | ✓ |

✓ Function available

(✓) Available with restricted functionality

-- Function not available

| Motor Starter ES | Basic | Standard | Premium |
|---|---|---|---|
| Access via the local interface on the device | ✓ | ✓ | ✓ |
| Parameter assignment | ✓ | ✓ | ✓ |
| Operating | ✓ | ✓ | ✓ |
| Diagnostics | -- | ✓ | ✓ |
| Creation of templates | -- | ✓ | ✓ |
| Comparison functions | -- | ✓ | ✓ |
| Standard-compliant printout according to EN ISO 7200 | -- | ✓ | ✓ |
| Service data (slave pointer, statistics data) | -- | ✓ | ✓ |
| Access via PROFIBUS | -- | -- | ✓ |
| Access via PROFINET | -- | -- | ✓ |
| S7 routing | -- | -- | ✓ |
| Teleservice via MPI | -- | -- | ✓ |
| STEP 7 object manager[1)] | -- | -- | ✓ |
| Trace function | -- | ✓ | ✓ |

✓ Function available

-- Function not available

1) Only for STEP 7 V5.x

### *Additional functions*

Standard-compliant printouts

The software tool greatly simplifies machine documentation. It enables parameterization printouts according to ISO 7200. The elements to be printed are easy to select and group as required.

Easy creation of templates

Templates can be created for devices and applications with only minimum differences in their parameters. These templates contain all the parameters which are needed for the parameterization. In addition it is possible to specify which of these parameters are fixed and which can be adapted, e.g. by the startup engineer.

Teleservice via MPI

The Motor Starter ES Premium version supports the use of MPI Teleservice (comprising the Teleservice software and various Teleservice adapters) for remote diagnostics of the devices. This facilitates diagnostics and maintenance, and it shortens response times for service purposes.

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## Benefits

- Fast, error-free configuration and startup of motor starters even without extensive previous knowledge
- Transparent setting of the device functions and their parameters – online and offline
- Effective diagnostics functions on the soft starter and display of the most important measured values
- Trace function (oscilloscope function) for recording measured values and events (included in the Motor Starter ES Standard and Premium software version for M200D, PROFIBUS and PROFINET).

## Selection and ordering data

***Parameterization, startup and diagnostics software***
***Motor Starter ES 2007***

For ECOFAST Motor Starter, SIMATIC ET 200S High Feature Starter, SIMATIC ET 200pro Starter and M200D (AS-i Standard, PROFIBUS, PROFINET)

- Delivered without PC cable

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Motor Starter ES 2007 Basic** | | | | | |
| 3ZS1310-4CC10-0YA5 | | | | | |
| **Floating license for one user** Engineering software in limited-function version for diagnostics purposes, class A, 3 languages (German/English/French), communication via system interface Type of delivery: | | | | | |
| • Software and documentation on CD and floating license on USB flash drive | **3ZS1310-4CC10-0YA5** | | 1 | 1 unit | 42D |
| • Floating license as a download | **3ZS1310-4CE10-0YB5** | | 1 | 1 unit | 42D |
| **Motor Starter ES 2007 Standard** | | | | | |
| 3ZS1310-5CC10-0YA5 | | | | | |
| **Floating license for one user** Engineering software, class A, 3 languages (German/English/French), communication through the system interface Type of delivery: | | | | | |
| • Software and documentation on CD and floating license on USB flash drive | **3ZS1310-5CC10-0YA5** | | 1 | 1 unit | 42D |
| • Floating license as a download | **3ZS1310-5CE10-0YB5** | | 1 | 1 unit | 42D |
| **Motor Starter ES 2007 Premium** | | | | | |
| 3ZS1310-6CC10-0YA5 | | | | | |
| **Floating license for one user** Engineering software, class A, 3 languages (German/English/French), communication via system interface or PROFIBUS/PROFINET, STEP 7 Object Manager Type of delivery: | | | | | |
| • Software and documentation on CD and floating license on USB flash drive | **3ZS1310-6CC10-0YA5** | | 1 | 1 unit | 42D |
| • Floating license as a download | **3ZS1310-6CE10-0YB5** | | 1 | 1 unit | 42D |

For description of the software versions, see page 14/10.

## Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Optional accessories** | | | | | |
| **RS 232 interface cables** Serial data connection between ET 200pro MS/FC, M200D and laptop/PC/PG or MS | **3RK1922-2BP00** | | 1 | 1 unit | 42D |
| **USB interface cables** Serial data connection between ET 200pro MS/FC, M200D and laptop/PC/PG or MS | **6SL3555-0PA00-2AA0** | | 1 | 1 unit | 368 |
| **USB/serial adapters** For connecting an RS 232 PC cable to the USB interface of a PC, recommended for use in conjunction with ET 200S/ECOFAST/ET 200pro motor starters | **3UF7946-0AA00-0** | | 1 | 1 unit | 42J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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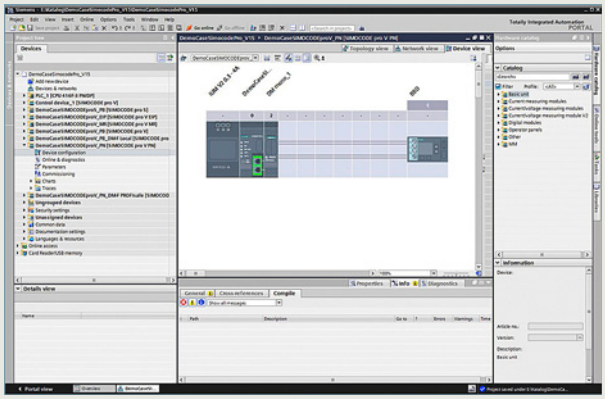
## SIMOCODE ES (TIA Portal)

### Overview



Selection of SIMOCODE pro device configuration in SIMOCODE ES (TIA Portal)

**More information**

Industry Mall, see www.siemens.com/product?3ZS1

Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16716/td

Software download

- SIMOCODE ES (TIA Portal), basic functional scope including Professional Trial License, see https://support.industry.siemens.com/cs/ww/en/view/109793078
- SIMOCODE ES 2007, see https://support.industry.siemens.com/cs/ww/en/view/109750623

SIMOCODE ES is the central software for configuration, startup, operation and diagnostics of SIMOCODE pro.

SIMOCODE ES (TIA Portal) is available as a powerful successor to Version 2007, which is based on the central engineering framework Totally Integrated Automation Portal (TIA Portal).

The engineering software is integrated seamlessly when further TIA Portal-based software such as STEP 7 or WinCC is available, thus enabling users to achieve a consistent, efficient and intuitive solution for all automation tasks.

However, use of SIMOCODE ES as stand-alone software also provides these advantages.

#### *Two program versions*

The user can choose between two versions of SIMOCODE ES:

- SIMOCODE ES Basic
- SIMOCODE ES Professional

The powerful SIMOCODE ES Basic tool for startup or maintenance personnel is available for downloading free of charge in the Siemens Industry Online Support, see "More information".

SIMOCODE ES Professional is a perfect tool for engineers or configuration engineers with its extended scope of functions and integrated graphics editor. Unlike the Basic version, SIMOCODE ES Professional also permits parameter assignment and diagnostics via PROFIBUS/PROFINET/Ethernet. Indication of all operating, service and diagnostics data supplies important information about the current state of the motor and plant at all times – everywhere on PROFIBUS/PROFINET/Ethernet.

| SIMOCODE ES | Basic | Professional |
|---|---|---|
| Access via the local interface on the device | ✓ | ✓ |
| Parameter assignment in list form | ✓ | ✓ |
| Parameter assignment via expert list | -- | ✓ |
| Bulk engineering | -- | ✓ |
| Working with libraries | ✓ | ✓ |
| Parameter printing in list form | ✓ | ✓ |
| Operating | ✓ | ✓ |
| Diagnostics | ✓ | ✓ |
| Test | ✓ | ✓ |
| Service data | ✓ | ✓ |
| Analog value recording[1)] | ✓ | ✓ |
| Trend display of measured values | -- | ✓ |
| Parameterizing with convenient graphical display | -- | ✓ |
| Parameterizing with the integrated graphics editor (CFC-based) | -- | ✓ |
| Printing of diagrams | -- | ✓ |
| Parameter comparison | -- | ✓ |
| Access via PROFIBUS/PROFINET/Ethernet | -- | ✓ |
| Teleservice via MPI | -- | ✓ |
| Routing[2)] | -- | ✓ |
| Firmware update basic units[1)] | ✓ | ✓ |

✓ Function available

-- Function not available

1) For SIMOCODE pro V.

2) See https://support.industry.siemens.com/cs/ww/en/view/109738745.

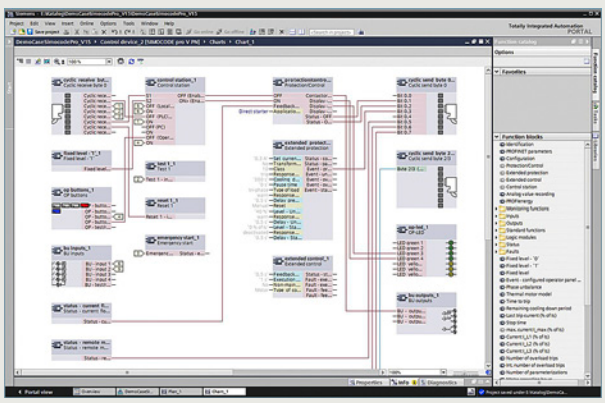
#### *Working with libraries*

Users can create copy templates for SIMOCODE pro device configuration and can manage them in global or project libraries.

This way, individual modules, diagrams and complete device configurations can be saved as reusable elements for frequently occurring tasks.

#### *Integrated graphics editor*

The graphics editor is part of SIMOCODE ES Professional. It is based on the Continuous Function Chart (CFC) and adds a powerful tool to the parameterizing interface that enables easy parameterization of devices by drag & drop. What is more, all the parameters can also be edited directly in the graphics editor. Extremely compact documentation of all configured parameters is possible, as is the graphic online presentation of the configured device functions including all signal states during operation.



Parameterize easily and ergonomically with the CFC-based graphics editor of SIMOCODE ES Professional

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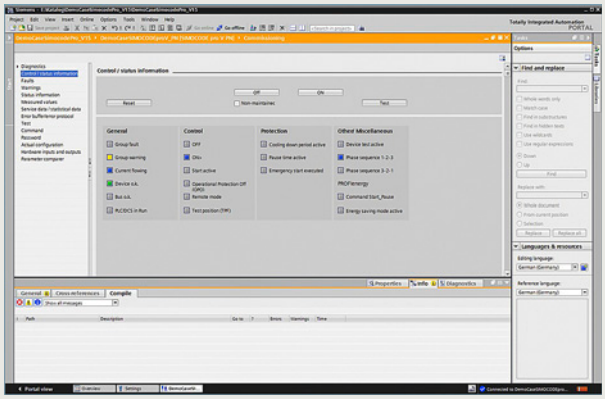
### *Online functions for startup and diagnostics*

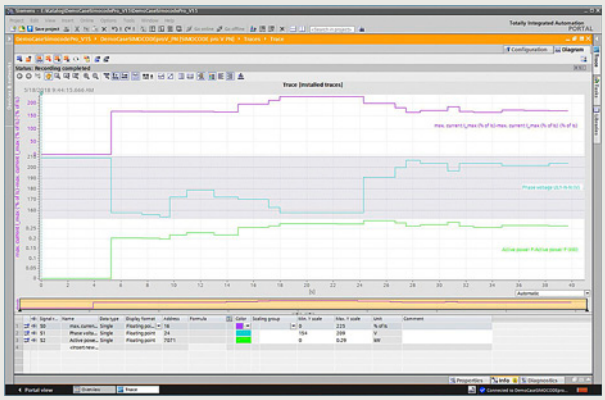
To this end, SIMOCODE ES provides powerful functions for startup and diagnostics of motor feeders. Besides a detailed display of status information and the causes of faults, all available measurement and statistics data can be retrieved online. Access to the fault and event memory and also to analog values recorded on the device, e.g. current or voltage, is also possible.



Commissioning functions of SIMOCODE ES

### *Trend display of measured values*

With this online function, SIMOCODE ES Professional can present the trends of different measured values. It is thus possible for example to record and evaluate the startup characteristic of a motor or its behavior under different load conditions.



Live trend display of SIMOCODE ES

### *Additional functions*

SIMOCODE ES offers numerous advantages of the TIA Portal that can be used in an integrated working environment.

Seamless integration

When using other TIA Portal-based software such as STEP 7 or WinCC, for example, the configuration for devices and networks for all components used is created in a standardized environment.

Teleservice via MPI

The SIMOCODE ES (TIA Portal) Professional version supports the use of MPI Teleservice (comprising the Teleservice software and various Teleservice adapters) for remote diagnostics of the devices. This facilitates diagnostics and maintenance, and it shortens response times for service purposes.

## Benefits

- Easy parameterization with the graphics editor based on the Continuous Function Chart (CFC) reduces engineering work and shortens startup times
- Clear plant documentation by means of graphic presentation
- Detailed information, also when there are faults, is a help for maintenance personnel and shortens downtimes
- Universally applicable through stand-alone version or seamless integration into the central engineering framework when other TIA Portal-based software such as STEP 7 or WinCC are available
- Parameter changes are also possible during normal operation
- Users can create copy templates for device configurations and can manage them in global libraries

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## SIMOCODE ES (TIA Portal)

### Selection and ordering data

***Parameterization and service software for SIMOCODE pro 3UF7***

- Delivered without PC cable

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **SIMOCODE ES V17 Basic** | | | | | |
| **Basic functional scope including Professional Trial License**<br>Engineering software, class A,<br>6 languages (German/English/Chinese included,<br>French/Italian/Spanish as a download),<br>for all SIMOCODE pro,<br>online functions via system interface<br>Type of delivery:<br>Software and documentation available free of charge as a download, see https://support.industry.siemens.com/cs/ww/en/view/109793078 | | | | | |
| **SIMOCODE ES V17 Professional** | | | | | |
| <br>3ZS1322-6CC15-0YA5 | | | | | |
| **Floating license for one user**<br>Engineering software, class A,<br>6 languages (German/English/Chinese included,<br>French/Italian/Spanish as a download),<br>Combo license for parallel use of versions 2007 and V17 of SIRIUS ES, for all SIMOCODE pro,<br>online functions via system interface and PROFIBUS/PROFINET/Ethernet,<br>parameterizing with the integrated graphics editor (CFC-based)<br>Type of delivery: | | | | | |
| • Software and documentation on DVD and floating license on USB flash drive | **3ZS1322-6CC15-0YA5** | | 1 | 1 unit | 42J |
| • Software and documentation as a download and floating license as a download | **3ZS1322-6CE15-0YB5** | | 1 | 1 unit | 42J |
| **Upgrade for SIMOCODE ES 2007 Premium**<br>Engineering software, class A,<br>6 languages (German/English/Chinese included,<br>French/Italian/Spanish as a download),<br>Combo license for parallel use of versions 2007 and V17 of SIRIUS ES, for all SIMOCODE pro,<br>online functions via system interface and PROFIBUS/PROFINET/Ethernet,<br>parameterizing with the integrated graphics editor (CFC-based)<br>Type of delivery: | | | | | |
| • Software and documentation on DVD and floating license on USB flash drive | **3ZS1322-6CC15-0YE5** | | 1 | 1 unit | 42J |
| **Software update service**<br>For 1 year with automatic extension,<br>requires software version of SIMOCODE ES (TIA Portal),<br>engineering software, class A,<br>online functions via system interface and PROFIBUS/PROFINET/Ethernet,<br>parameterizing with integrated graphics editor (CFC-based)<br>Type of delivery: | | | | | |
| • Software and documentation on DVD | **3ZS1322-6CC00-0YL5** | | 1 | 1 unit | 42J |

Notes:

For description of the software versions, see page 14/12.

Please order PC cable separately, see "Accessories".

SIMOCODE ES Standard and Premium V12 to V15 licenses can also be used for SIMOCODE ES V16/V17 Professional.

### Accessories

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **Optional accessories** | | | | | |
| <br>3UF7941-0AA00-0 | | | | | |
| **USB PC cables**<br>For connecting to the USB interface of a PC/PG, for communication with SIMOCODE ES via the system interface | **3UF7941-0AA00-0** | | 1 | 1 unit | 42J |
| **USB/serial adapters**<br>For connecting an RS 232 PC cable to the USB interface of a PC, recommended for use in conjunction with SIMOCODE ES | **3UF7946-0AA00-0** | | 1 | 1 unit | 42J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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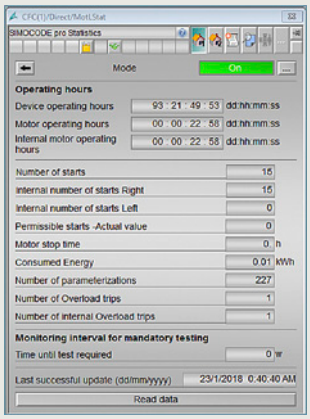
## Overview




Advanced Process Library (APL) - faceplates and blocks for statistical data of the SIMOCODE pro library for PCS 7

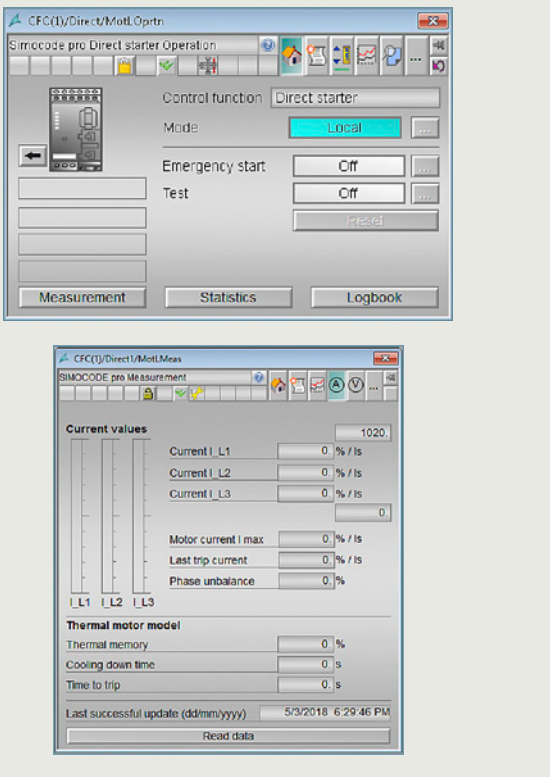
**More information**

Industry Mall, see www.siemens.com/product?3ZS1

Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/16718/td

Overview of the available versions incl. programming manuals, Getting Started, updates and hotfixes, compatibility check, see https://support.industry.siemens.com/cs/ww/en/view/109760422

The PCS 7 block library can be used for simple and easy integration of SIMOCODE pro into the SIMATIC PCS 7 process control system. One focus here is on easy configuration, because the number of required configuration steps is reduced crucially. The configuration of the blocks is based on the PCS 7 standard configuration processes and is optimally harmonized with the functions of SIMOCODE pro. Users who have previously integrated conventional motor feeders into PCS 7 will therefore find it easy to switch to SIMOCODE pro.




Advanced Process Library (APL) - faceplates and function blocks for control and measured data of the SIMOCODE pro library for PCS 7

## Benefits

- Uniform and continuous integration into SIMATIC PCS 7
- Standardized blocks for simple integration and optimal operation
- Greater process transparency due to greater information density in the I&C system

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## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **SIMOCODE pro block library for SIMATIC PCS 7 version V9.1 with Advanced Process Library (APL)** | | | | | |
| 3ZS1632-1XE04-0YA0 | | | | | |
| **Engineering software V9.1**<br>For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English<br>Scope of supply:<br>AS blocks and faceplates for integrating SIMOCODE pro into the PCS 7 process control system with Advanced Process Library, for PCS 7 version V9.1<br>Type of delivery:<br>One license for one engineering station, one license for one automation system | | | | | |
| • Software and documentation as software download (OSD) | **3ZS1632-1XE04-0YA0** | | 1 | 1 unit | 42J |
| **Runtime license V9.1**<br>For execution of the AS blocks in an automation system (single license)<br>Required for using the AS blocks of the engineering software V9.1 within a plant<br>Type of delivery:<br>One license for one automation system, without software and documentation | | | | | |
| • Certificate of License (CoL) in electronic form (OSD)[1] | **3ZS1632-2XE04-0YB0** | | 1 | 1 unit | 42J |
| **Upgrade for PCS 7 block library SIMOCODE pro V8 or V9.0[2]**<br>To version SIMOCODE pro V9.1 for one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English<br>Scope of supply:<br>AS blocks and faceplates for integrating SIMOCODE pro into the PCS 7 process control system with Advanced Process Library, for PCS 7 version V9.1<br>Type of delivery:<br>One license for one engineering station, one license for one automation system | | | | | |
| • Software and documentation as software download (OSD) | **3ZS1632-1XE04-0YE0** | | 1 | 1 unit | 42J |
| **Upgrade for PCS 7 block library SIMOCODE pro V7 (without APL)[2]**<br>To version SIMOCODE pro V9.1 (with APL) for one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English<br>Scope of supply:<br>AS blocks and faceplates for integrating SIMOCODE pro into the PCS 7 process control system with Advanced Process Library, for PCS 7 version V9.1<br>Type of delivery:<br>One license for one engineering station, one license for one automation system | | | | | |
| • Software and documentation as software download (OSD) | **3ZS1632-1XE04-0YF0** | | 1 | 1 unit | 42J |

1) With a Certificate of License (CoL) in electronic form, the license is supplied via Online Software Delivery (OSD) as a PDF file. Notification of this with a download link is received by email.

2) The upgrade is valid equally for existing engineering software incl. runtime license and for a single runtime license.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **SIMOCODE pro block library for SIMATIC PCS 7 version V9.0 with Advanced Process Library (APL)** | | | | | |
| 3ZS1632-1XX03-0YA0 | | | | | |
| **Engineering software V9.0** | | | | | |
| For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English | | | | | |
| Scope of supply: AS blocks and faceplates for integrating SIMOCODE pro into the PCS 7 process control system with Advanced Process Library, for PCS 7 version V9.0 | | | | | |
| Type of delivery: One license for one engineering station, one license for one automation system | | | | | |
| • Software and documentation on CD | **3ZS1632-1XX03-0YA0** | | 1 | 1 unit | 42J |
| • Software and documentation as software download (OSD) | **3ZS1632-1XE03-0YA0** | | 1 | 1 unit | 42J |
| **Runtime license V9.0** | | | | | |
| For execution of the AS blocks in an automation system (single license) | | | | | |
| Required for using the AS blocks of the engineering software V9.0 within a plant | | | | | |
| Type of delivery: One license for one automation system, without software and documentation | | | | | |
| • Certificate of License (CoL) in paper form | **3ZS1632-2XX03-0YB0** | | 1 | 1 unit | 42J |
| • Certificate of License (CoL) in electronic form (OSD)[1] | **3ZS1632-2XE03-0YB0** | | 1 | 1 unit | 42J |
| **Upgrade for PCS 7 block library SIMOCODE pro V8** | | | | | |
| To version SIMOCODE pro V9.0 for one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English | | | | | |
| Scope of supply: AS blocks and faceplates for integrating SIMOCODE pro into the PCS 7 process control system with Advanced Process Library, for PCS 7 version V9.0 | | | | | |
| Type of delivery: One license for one engineering station, one license for one automation system | | | | | |
| • Software and documentation on CD | **3ZS1632-1XX03-0YE0** | | 1 | 1 unit | 42J |

[1] With a Certificate of License (CoL) in electronic form, the license is supplied via Online Software Delivery (OSD) as a PDF file. Notification of this with a download link is received by email.

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## SIMOCODE pro block library for SIMATIC PCS 7

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **SIMOCODE pro block library for SIMATIC PCS 7 without Advanced Process Library (APL)** | | | | | |
| 3UF7982-0AA10-0 | | | | | |
| **Engineering software V7** | | | | | |
| For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English/French | | | | | |
| Scope of supply: AS blocks and faceplates for integrating SIMOCODE pro into the PCS 7 process control system, for PCS 7 versions V7.0/V7.1 | | | | | |
| Type of delivery: One license for one engineering station, one license for one automation system | | | | | |
| • Software and documentation on CD | **3UF7982-0AA10-0** | | 1 | 1 unit | 42J |
| **Runtime license V7** | | | | | |
| For execution of the AS blocks in an automation system (single license) | | | | | |
| Required for using the AS blocks of the engineering software V7 or the engineering software migration V7-V9 on an additional automation system within a plant | | | | | |
| Type of delivery: One license for one automation system, without software and documentation | | | | | |
| • Certificate of License (CoL) in paper form | **3UF7982-0AA11-0** | | 1 | 1 unit | 42J |
| **Engineering software migration V7-V9** | | | | | |
| For upgrading (migrating) an existing engineering software V7 of the SIMOCODE pro block library for PCS 7 | | | | | |
| Conditions of use: Availability of the engineering software V7 (license) of the SIMOCODE pro block library for PCS 7 for the PCS 7 version V7.0 or V7.1 | | | | | |
| The engineering software migration V7-V9 can be installed directly onto a system with PCS 7 version V8 or V9; installation of the previous version is not required. | | | | | |
| For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English/French | | | | | |
| Scope of supply: AS blocks and faceplates for integrating SIMOCODE pro into the PCS 7 process control system | | | | | |
| Type of delivery: License for upgrading an existing license for one engineering station and a plant's assigned runtime licenses | | | | | |
| For PCS 7 versions V8.0/V8.1/V8.2/V9.0 | | | | | |
| • Software and documentation on CD | **3UF7982-0AA20-0** | | 1 | 1 unit | 42J |
| • Software and documentation as software download (OSD) | **3UF7982-0AA20-1** | | 1 | 1 unit | 42J |
| For PCS 7 version V9.1 | | | | | |
| • Software and documentation as software download (OSD) | **3UF7982-0AA30-1** | | 1 | 1 unit | 42J |

14



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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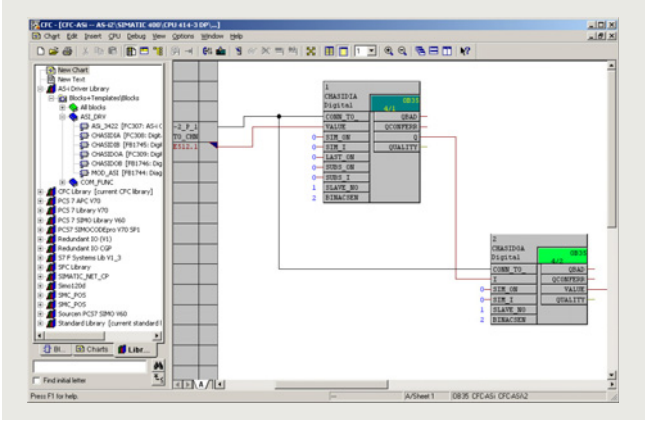
## Overview



AS-Interface block library for SIMATIC PCS 7 in CFC chart

**More information**

Overview of the available versions incl. programming manuals, Getting Started, service packs, updates and hotfixes, compatibility check, see https://support.industry.siemens.com/cs/ww/en/view/109759605

The AS-Interface block library for PCS 7 is integrated in the SIMATIC PCS 7 process control system and expands it for integration of the AS-Interface system.

As the result, the advantages of AS-Interface such as the considerable reduction of wiring outlay for distributed actuators/sensors and very simple installation can also be used in a system based on PCS 7.

The library contains modules for accessing the I/O data of AS-i slaves, modules for diagnostics of the AS-i system, and faceplates for the PCS 7 Maintenance Station.

### *Supported AS-Interface modules*

The AS-Interface block library for PCS 7 can be used with the following AS-i master modules, see also page 2/1 onwards:

- CM AS-i Master ST (in ET 200SP station) 3RK7137-6SA00-0BC1
- CP 343-2 (in ET 200M station) 6GK7343-2AH01-0XA0
- CP 343-2P (in ET 200M station) 6GK7343-2AH11-0XA0

The support of further AS-i modules is described in the manuals of the libraries, see section "More information".

The CM AS-i Master ST module is supported with IM 155-6 PN High Feature or IM 155-6 DP High Feature within an ET 200SP station interfaced via PROFINET or PROFIBUS (ET 200SP PROFIBUS from engineering software V9.0 SP2 Update 1).

The AS-i master CP 343-2 and CP 343-2P are supported within an ET 200M station interfaced via PROFINET or PROFIBUS.

With the CM AS-i Master ST, CP 343-2 or CP 343-2P modules, digital AS-i slaves with standard addressing and extended addressing (A/B slaves; see also remark under "Application") can be operated via the library.

Analog AS-i slaves on the CM AS-i Master ST module are supported from engineering software V9.1.

### *Hardware and software requirements*

The libraries require the following PCS 7 versions:

- Engineering software V9.1: PCS 7 version V9.1
- Engineering software V9.0: PCS 7 version V9.0
- Engineering software V8.1: PCS 7 versions V8.2, V8.1 and V8.0 (from V8.0 SP1 Update 3)

Notes:

More information on the combination of the various modules and software versions can be found via the compatibility tool, see https://support.industry.siemens.com/cs/ww/en/view/64847781

The delivery of the engineering software includes the basic version of the library. Service packs and updates are available for downloading to adapt to the PCS 7 version used, see https://support.industry.siemens.com/cs/ww/en/view/109759605

## Benefits

- Easy connection of AS-Interface to PCS 7
- Engineering work reduced to positioning and connecting the blocks in the CFC
- With no additional configuring steps required for connection to the PCS 7 Maintenance Station, diagnostics for the AS-i system is optimally guaranteed.

## Application

The AS-Interface block library for PCS 7 is used in systems based on PCS 7 where the actuators and sensors are connected using AS-Interface.

Notes:

The AS-i masters CP 343-2 and CP 343-2P do not transmit I/O data from AS-i slaves with a B address via the cyclic process image (partition), but via data records.

To prevent delays in the communication of driver blocks for B slaves, we recommend avoiding the use of AS-i slaves with B addresses for PCS 7 configurations with CP 343-2 or CP 343-2P.

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## Selection and ordering data

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **AS-Interface block library for SIMATIC PCS 7 version V9.1 with Advanced Process Library (APL)** | | | | | |
| 3ZS1635-1XE04-0YA0 | **Engineering software V9.1**<br>For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English<br>Scope of supply:<br>AS blocks and faceplates for integrating AS-Interface into the PCS 7 process control system with Advanced Process Library (APL), for PCS 7 version V9.1 and higher<br>Type of delivery:<br>One license for one engineering station, one license for one automation system | | | | |
| | • Software and documentation as software download (OSD) | **3ZS1635-1XE04-0YA0** | 1 | 1 unit | 42C |
| | **Runtime license V9.1**<br>For execution of the AS blocks in an automation system (single license)<br>Required for using the AS blocks of the engineering software V9.1 on an additional automation system within a plant<br>Type of delivery:<br>One license for one automation system, without software and documentation | | | | |
| | • Certificate of License (CoL) in electronic form (OSD)[1] | **3ZS1635-2XE04-0YB0** | 1 | 1 unit | 42C |
| **AS-Interface block library for SIMATIC PCS 7 version V9.0 with Advanced Process Library (APL)** | | | | | |
| 3ZS1635-1XX03-0YA0 | **Engineering software V9.0**<br>For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English<br>Scope of supply:<br>AS blocks and faceplates for integrating AS-Interface into the PCS 7 process control system with Advanced Process Library (APL), for PCS 7 version V9.0<br>Type of delivery:<br>One license for one engineering station, one license for one automation system | | | | |
| | • Software and documentation on CD | **3ZS1635-1XX03-0YA0** | 1 | 1 unit | 42C |
| | **Runtime license V9.0**<br>For execution of the AS blocks in an automation system (single license)<br>Required for using the AS blocks of the engineering software V9.0 on an additional automation system within a plant<br>Type of delivery:<br>One license for one automation system, without software and documentation | | | | |
| | • Certificate of License (CoL) in paper form | **3ZS1635-2XX03-0YB0** | 1 | 1 unit | 42C |

[1] With a Certificate of License (CoL) in electronic form, the license is supplied via Online Software Delivery (OSD) as a PDF file. Notification of this with a download link is received by email.



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **AS-Interface block library for SIMATIC PCS 7 version V8 with Advanced Process Library (APL)** | | | | | |
| 3ZS1635-1XX02-0YA0 | | | | | |
| **Engineering software V8.1** | | | | | |
| For one engineering station (single license) including runtime software for execution of the AS blocks in an automation system (single license), German/English | | | | | |
| Scope of supply: AS blocks and faceplates for integrating AS-Interface into the PCS 7 process control system with Advanced Process Library (APL), for PCS 7 versions V8.2, V8.1 and V8.0 (from V8.0 SP1 Update 3) | | | | | |
| Type of delivery: One license for one engineering station, one license for one automation system | | | | | |
| • Software and documentation on CD | **3ZS1635-1XX02-0YA0** | | 1 | 1 unit | 42C |
| **Runtime license V8** | | | | | |
| For execution of the AS blocks in an automation system (single license) | | | | | |
| Required for using the AS blocks of the engineering software V8 or V8.1 on an additional automation system within a plant | | | | | |
| Type of delivery: One license for one automation system, without software and documentation | | | | | |
| • Certificate of License (CoL) in paper form | **3ZS1635-2XX02-0YB0** | | 1 | 1 unit | 42C |

14

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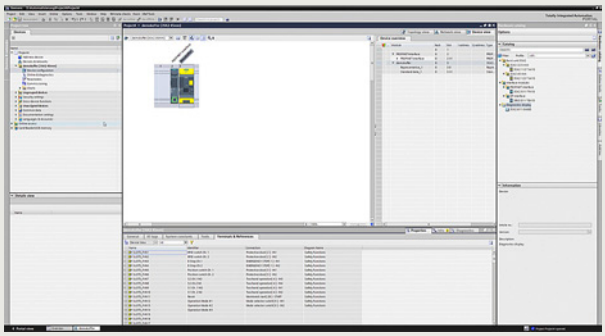
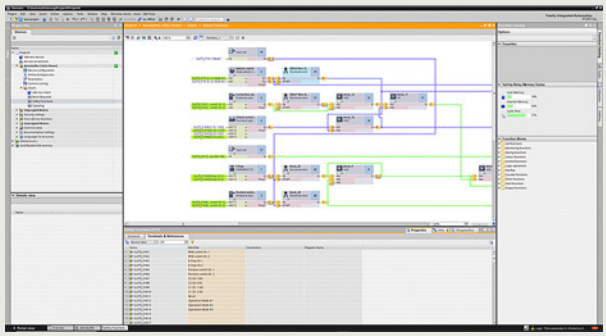
## SIRIUS Safety ES (TIA Portal)

### Overview



SIRIUS Safety ES (TIA Portal): Configuration



SIRIUS Safety ES (TIA Portal): Logic

**More information**

Technical specifications, see https://support.industry.siemens.com/cs/ww/en/ps/26081/td

Download of SIRIUS Safety ES Basic, see https://support.industry.siemens.com/cs/ww/en/view/109793090

The SIRIUS Safety ES (TIA Portal) software permits quick and easy parameterization, commissioning and diagnostics of SIRIUS 3SK2 safety relays. Device configuration and device functionality can easily be created graphically directly on the PC and transferred to the switching device through a USB cable or an optional PROFIBUS/PROFINET interface.

The powerful SIRIUS Safety ES Basic program version for startup or maintenance personnel is available for downloading free of charge in the Siemens Industry Online Support, see "More information".

SIRIUS Safety ES is integrated seamlessly when further TIA Portal-based software such as STEP 7 or WinCC is available, thus enabling users to achieve a consistent, efficient and intuitive solution for all automation tasks.

However, use of SIRIUS Safety ES (TIA Portal) as stand-alone software also provides these advantages.

***Efficient engineering with two program versions***

The SIRIUS Safety ES (TIA Portal) software program is available in two versions, which differ in their user-friendliness and scope of functions.

| SIRIUS Safety ES (TIA Portal) | Basic | Professional |
|---|---|---|
| Unlimited number of function blocks | -- | ✓ |
| Access to the local interface on the device | ✓ | ✓ |
| Access via PROFINET/PROFIBUS | -- | ✓ |
| Routing | -- | ✓ |
| Parameter comparison | -- | ✓ |
| Parameter assignment | ✓ | ✓ |

✓ Function available

-- Function not available

***Additional functions***

SIRIUS Safety ES (TIA Portal) offers numerous advantages of the TIA Portal that can be used in an integrated working environment.

Seamless integration

When using other TIA Portal-based software such as STEP 7 or WinCC, for example, the configuration for devices and networks for all components used is created in a standardized environment.

Working with libraries

Users can create copy templates for frequently-used applications or parameters and can manage them in global or project libraries. This way, individual modules, diagrams and complete device configurations can be saved as reusable elements for frequently occurring tasks.

Interface to SIRIUS Sim 3SK2

The integrated interface to the simulation software SIRIUS Sim allows all parameterization, application testing and diagnostics to be carried out on the digital twin without any real hardware components. This saves time and capital costs.

SIRIUS Sim, see page 14/25 or https://support.industry.siemens.com/cs/ww/en/view/109763750.

### Benefits

- Transparent setting of the device functions and their parameters
- Effective support during commissioning
- Comprehensive diagnostics functions
- Complete transparency thanks to printout, logbook memory
- High degree of user-friendliness – convenient user interface, with English, German, French, Italian, Spanish and Chinese as possible operating languages
- Time savings thanks to shorter startup times
- Fast, low-cost licensing using a simple licensing procedure (available online too)

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## Selection and ordering data

***Parameterization and service software for SIRIUS 3SK2 safety relays***

- Delivered without PC cable

| Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|
| **SIRIUS Safety ES V17 Basic** | | | | | |
| **Basic functional scope including Professional Trial License**<br>Engineering software, class A, 6 languages (German/English/Chinese included, French/Italian/Spanish as a download), for all 3SK2, online functions via system interface<br>Type of delivery:<br>Software and documentation available free of charge as a download, see https://support.industry.siemens.com/cs/ww/en/view/109793090 | | | | | |
| **SIRIUS Safety ES V17 Professional** | | | | | |
| <br>3ZS1326-2CC10-0YA5 | | | | | |
| **Floating license for one user**<br>Engineering software, class A, 6 languages (German/English/Chinese included, French/Italian/Spanish as a download), Combo license for parallel use of versions V1.0 and V17 of the Safety ES, for all 3SK2, online functions via system interface and PROFIBUS/PROFINET, parameterizing with the integrated graphics editor (CFC-based)<br>Type of delivery: | | | | | |
| • Software and documentation on DVD and floating license on USB flash drive | **3ZS1326-2CC10-0YA5** | | 1 | 1 unit | 41L |
| • Software and documentation as a download and floating license as a download | **3ZS1326-2CE10-0YB5** | | 1 | 1 unit | 41L |
| **Upgrade for Safety ES V1.0 Premium**<br>Engineering software, class A, 6 languages (German/English/Chinese included, French/Italian/Spanish as a download), Combo license for parallel use of versions V1.0 and V17 of the Safety ES, for all 3SK2, online functions via system interface and PROFIBUS/PROFINET/Ethernet, parameterizing with the integrated graphics editor (CFC-based)<br>Type of delivery: | | | | | |
| • Software and documentation on DVD and floating license on USB flash drive | **3ZS1326-2CC10-0YE5** | | 1 | 1 unit | 41L |

Notes:

For description of the software versions, see page 14/22.

Please order PC cable separately, see 14/24.

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## Accessories

| | Version | Article No. | Price per PU | PU (UNIT, SET, M) | PS* | PG |
|---|---|---|---|---|---|---|
| **Optional accessories** | | | | | | |
| 3UF7941-0AA00-0 | **USB PC cables**<br>For connecting to the USB interface of a PC/PG, for communication with 3SK2 through the system interface, recommended for use in connection with 3SK2 | **3UF7941-0AA00-0** | | 1 | 1 unit | 42J |
| 3SK2511-1FA10 | **Interface modules**<br>• For connecting 3SK2 safety relays via PROFINET | | | | | |
| | | **Screw terminals** | | | | |
| | - Screw terminals | **3SK2511-1FA10** | | 1 | 1 unit | 41L |
| | | **Spring-loaded terminals (push-in)** | | | | |
| | - Spring-loaded terminals (push-in) | **3SK2511-2FA10** | | 1 | 1 unit | 41L |
| 3RK3511-1BA10 | • For connecting 3SK2 safety relays via PROFIBUS | | | | | |
| | | **Screw terminals** | | | | |
| | - Screw terminals | **3RK3511-1BA10** | | 1 | 1 unit | 42B |
| | | **Spring-loaded terminals** | | | | |
| | - Spring-loaded terminals | **3RK3511-2BA10** | | 1 | 1 unit | 42B |
| 3UF7930-0AA00-0 | **Connecting cables**<br>For connecting central units with expansion modules or interface module<br>Length: 0.025 m (flat) | **3UF7930-0AA00-0** | | 1 | 1 unit | 42J |



* You can order this quantity or a multiple thereof.
Illustrations are approximate

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## Overview

**More information**

SIRIUS Sim,
see https://support.industry.siemens.com/cs/ww/en/view/109763750

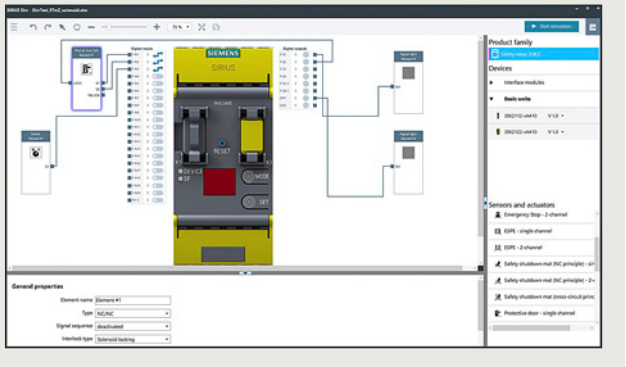
The SIRIUS simulation tool can be used to quickly and easily test functions and configurations in an office environment. These configurations can then be loaded directly into real devices.

SIRIUS Sim is available free of charge as a download, see "More information".

### *General functions*

- Comment function:
  comments can be placed in the logic diagram of the simulator.
- Simple exchange of devices and elements:
  when exchanging devices and elements, the connections are retained and do not have to be re-created.

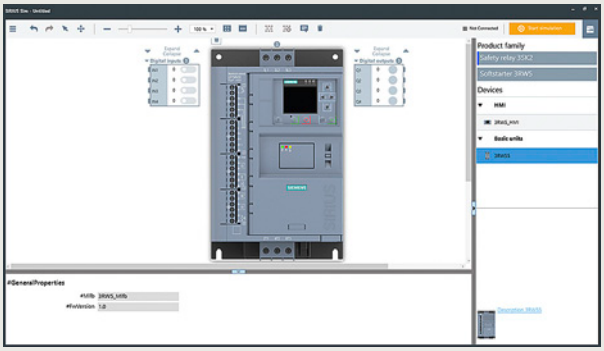
### *SIRIUS Sim 3SK2*



SIRIUS Sim 3SK2

- Support of SIRIUS 3SK2 safety relays and SIRIUS 3SK1 output expansions as well as the SIRIUS 3RM1 fail-safe motor starters and the SIRIUS 3RQ1 forced-guided coupling relays
- Display of connection status to ES tool:
  The connection status to the engineering software is displayed in the simulator. This makes it clear at first glance whether the simulator is connected to the ES tool.
- Automatic generation of the function elements:
  At the press of a button, the necessary function elements can be automatically generated based on the configuration data. Duplicated entry, in the engineering software and in the simulator, is unnecessary.

### *SIRIUS Sim 3RW55*



SIRIUS Sim 3RW55

- Complete parameterization of the SIRIUS 3RW55 High Performance and new 3RW55 Failsafe soft starters
- Complete navigation with the same menu structure as on the HMI
- Optional storage of the parameterization on a micro SD memory card for transfer to the real soft starter
- Simulation of startup and shutdown, including operating phases
- Simulation of different fault states

## Benefits

- Intuitive user interface
- Already contains predefined, standard application examples
- Simple familiarization with the devices
- Application engineering and testing in the simulation results in time and cost savings
- Free download

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## Notes

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**SITOP power supply**

For more information, see Catalog KT 10.1, https://support.industry.siemens.com/cs/ww/en/view/109745655

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## SITOP power supply

### Overview

| More information |
|---|
| Homepage, see www.siemens.com/sitop |
| Industry Mall, see www.siemens.com/product?SITOP |
| Further products, see Catalog KT 10.1 |

**Advanced power supplies**

***SITOP PSU8600 – the power supply system with complete TIA integration and open communication all the way to the cloud***

**Advanced power supplies**

***SITOP PSU8200 – the technology power supply for sophisticated solutions***

**Standard power supplies**

***SITOP PSU6200 – the all-round power supply for a wide variety of applications***

**Standard power supplies**

***SITOP smart – the high-performance standard power supply***

**Basic power supplies**

***SITOP lite – the low-cost basic power supply***

**Basic power supplies**

***LOGO!Power – the flat power supply for distribution boards***

**SIMATIC design power supplies**

***The optimum power supply for SIMATIC S7 and more***

**DC/DC converters**

***Stable supply despite fluctuating DC voltage***

**Special designs and applications**

***Designed for special tasks and conditions***

**SITOP DC-UPS uninterruptible power supplies**

***SITOP UPS500 with capacitors***
Protection against power failure on the input side by buffering in the minutes range

***SITOP UPS1600 with SITOP PSU8600 battery modules plus DC-UPS***
Protection against power failure on the input side by buffering in the hours range. DC-UPS with Ethernet/PROFINET – open and system-integrated in TIA

**Add-on modules**

***Redundancy modules***
Protection against failure of a power supply unit due to redundant design of the power supply

***Selectivity modules***
Protection against overload and short circuit through electronic protection of 24 V feeders

***Buffer modules***
Protection against power failure in the seconds range

***SITOP inrush current limiters***
Protecting your loads

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# Appendix

| | |
|---|---|
| 16/2 | **SITRAIN – Digital Industry Academy** |
| 16/4 | **Logistics** |
| 16/9 | **Standards and approvals** |
| 16/15 | **Quality management** |
| 16/16 | **Partners at Siemens** |
| 16/17 | **Siemens Partner Program** |
| 16/18 | **External partners** |
| | **Industry Services** |
| 16/19 | Industry Services – Portfolio |
| 16/22 | Online Support |
| 16/23 | **Software licenses** |
| 16/25 | **Conditions of sale and delivery** |

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## SITRAIN – Digital Industry Academy

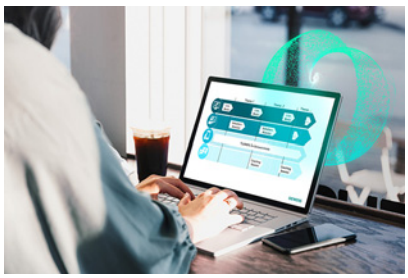
### Introduction

***The Future of Learning starts now***

Globalization, digitalization, new work, Internet of Things, new business models – our way of working, living and learning is changing rapidly. With SITRAIN, the future of learning begins today: SITRAIN stands for a modern learning culture that focuses on the needs of learners and the demands of innovative companies.
With SITRAIN – Digital Industry Academy, the future of learning is yours.

Face-to-face training or digital training, location-independent, 24/7, on-demand or learning at fixed dates and course times? With a personal learning consultant, in a team, or on your own responsibility? Everything is possible. SITRAIN offers a wide range of different learning options with the "Learning Journey", "Learning Membership" and "Learning Event".

***The three learning formats of SITRAIN – Digital Industry Academy***



***Learning Journey***

The combination for sustainable learning success

- The optimal mix of self-study units and guided live modules
- Includes a Learning Membership to work through the self-study modules and access on-demand content
- The SITRAIN learning consultant is available for questions and one-on-one consultations
- Ideal integration into the daily work routine and adaptation to one's own learning pace.

***Learning Membership***

Securing knowledge through continuous learning on your own responsibility

- With access to the comprehensive and constantly growing range of self-study units on SITRAIN access, the digital learning platform
- Search and find specific learning content or simply have a look around – anytime and anywhere
- A modern learning culture through continuous learning on your own responsibility and transparency about your learning success in the team or company.

***Learning Event***

Acquire theoretical and practical knowledge in a compact and guided format

- You achieve a defined learning goal in the shortest possible time
- The learning consultant guides you through the practical exercises and is also exclusively available to you during the theoretical sessions for the entire duration
- Focused learning, outside of the daily work routine, in a protected learning environment – virtually, in the training center, or at your company.

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## Introduction

***Expand your knowledge, apply what you have learned, develop future skills***

The SITRAIN Digital Industry Academy combines didactically effective methods and modular options.

***The four building blocks of SITRAIN – Digital Industry Academy***

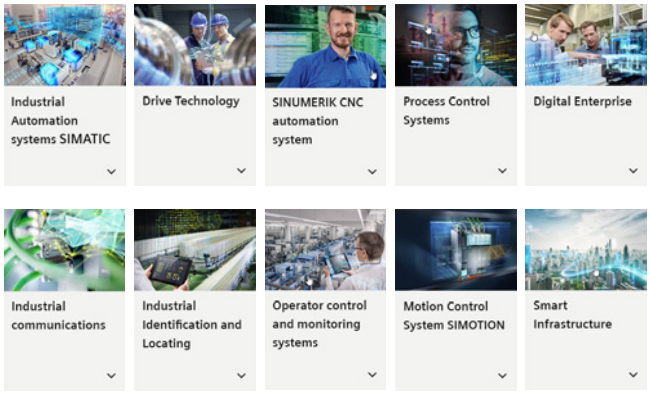
Different methods for maximum learning success:

- Live
- On your own responsibility
- On demand
- Individual

Learn the way you want to learn. For learning success that takes you further.

***Education and training directly from the manufacturer***

For individual knowledge building, the following topics concerning the industrial product and solution portfolio of Siemens are available. Experience the new learning culture with SITRAIN.



***Training cases catalog***

https://www.siemens.com/sitrain-catalog-training-cases

Find your local offer here

***SITRAIN – Digital Industry Academy worldwide***

You will find the regional knowledge offer in the country selection. One click will take you to the corresponding website.

***SITRAIN – Digital Industry Academy***

www.siemens.com/sitrain

- SITRAIN Learning Journey: www.siemens.com/sitrain-learning-journey
- SITRAIN Learning Membership: www.siemens.com/sitrain-learning-membership
- SITRAIN Learning Event: www.siemens.com/sitrain-learning-event

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## Overview

### *General*

With regard to delivery service, communications and environmental protection, our logistics service ensures "quality from the moment of ordering right through to delivery". By designing our infrastructure according to customer requirements and implementing electronic order processing, we have successfully optimized our logistics processes.

Our delivery processes are designed such that, as a rule, a confirmed deadline is not generally exceeded. In fact, wherever possible, we aim to deliver up to three working days ahead of schedule to optimize the overall delivery situation (e.g. in anticipation of holidays and peak order periods).

We are proud of our personal consulting service, on-time deliveries and one-day delivery within Germany.

**To achieve this, we supply the preferred types marked with ► ex warehouse[1)].**

We regard the ISO 9001 certification and consistent quality checks as an integral part of our services.

Electronic order processing is fast, cost-efficient and error-free. Please contact us if you want to benefit from these advantages.

1) Due to the current tight delivery situation on the market, no standard delivery times or preferred types are listed for our articles in this edition of the catalog.
Current information is given at the Mall for the respective article number, at www.siemens.com/sirius/mall.

### *Packaging, packing units*

The packaging in which our equipment is dispatched provides protection against dust and mechanical damage during transport, thus ensuring that you receive our products in a perfect state.

We select our packaging for maximum environmental compatibility and reusability and, in particular, with a view to reducing waste.

With our multi-unit packaging and reusable packaging, we offer you specific types of packaging that are both kind to the environment and tailored to your requirements.

Your advantages at a glance:

- Lower order costs
- Cost savings through uniform-type packaging: low/no disposal costs
- Reduced time and cost thanks to short unpacking times
- "Just-in-time" delivery directly to the production line helps reduce stock: cost savings through reduction of storage area
- Fast assembly thanks to supply in sets
- Standard Euro boxes – corresponding to the Euro pallet modular system – suitable for most conveyor systems
- Active contribution to environmental protection

Unless stated otherwise in the "Selection and ordering data" of this catalog, our products are supplied individually packed.

For small parts/accessories, we offer you economical packaging units as standard packs containing more than one item, e.g. 5, 10, 50 or 100 units. It is essential that whole number multiples of these quantities be ordered to ensure satisfactory quality of the products and problem-free order processing.

The products are delivered in a neutral carton. The label includes warning notices, the CE mark and product description information in English and German.

In addition to the article number (MLFB) and the packed number of items in the packaging the Instr. Order No. is also be specified for the operating instructions, which can be obtained from your local Siemens representative (you will find a list of your local Siemens contacts at www.siemens.com/automation-contact).

The device article number of most devices can also be acquired through the EAN barcode to simplify ordering and storage logistics.

The related master data are available from your local Siemens representative.

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### *Multi-unit and reusable packaging*

The devices listed in the tables from page 16/6 onwards can be ordered in multi-unit or reusable packaging (further versions on request).

If ordering multi-unit or reusable packaging for the first time, please first consult your local Siemens representative with regard to pack type, quantity, delivery time and the precise order designation. Use of the reusable packaging is reserved solely for customers that have signed a packaging return agreement with their Siemens representative in advance.

Multi-unit and reusable packaging is not available as a pack type for all products. Some products are unsuited for this pack type and would only involve an increased risk of damage in transit.

For both pack types, the quantity of devices ordered (per article number) must be divisible by the pack quantity. If this is not the case, the electronic order processing system rounds up to the next integer multiple of packaging.

Multi-unit packaging

Products in a quantity sufficient to fill a multi-unit packaging: 1/2 (W96) and 1/4 (W97) ENK

As standard, multi-unit packs contain uniform-type, unpacked individual products (one device type) in an appropriately sized carton made of recyclable cardboard. The products of the SIRIUS range can be ordered in units of 1/1, 1/2, 1/4 and 1/8 standard Euro boxes (ENK).

Reusable packaging (uniform type)

Standard Euro box (ENK) made of durable molded plastic with foam inserts

Standard reusable packaging contains uniform-type, un-packed individual products (one device type) in a reusable standard Euro box (ENK) made of durable molded plastic with foam inserts for protection during transport.

The standard Euro box (ENK) also serves as transport packaging. The reusable packaging (ENK) plus foam inserts are returned by the customer (free of charge) to the supply base.

Please contact your Siemens representative to clarify the delivery details or conditions for reusable packaging (ENK) (to find Siemens representatives, see www.siemens.com/automation-contact). Suitable arrangements will then be agreed with you.

Set deliveries (reusable, different devices)

On request, we also deliver order-related packs of larger quantities of different types of devices in a standard Euro box (ENK).

Please contact your Siemens representative to clarify the delivery details or conditions for set supply or delivery in reusable packaging. Suitable arrangements will then be agreed with you.

### *Packaging dimensions*

| Packing material | Length<br>mm | Height<br>mm | Width<br>mm |
|---|---|---|---|
| ENK | 596 | 219 | 396 |
| W95 | 575 | 190 | 375 |
| W96 | 375 | 190 | 290 |
| W97 | 290 | 190 | 195 |
| W98 | 290 | 100 | 195 |

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## Logistics

***Multi-unit and reusable packaging, quantity in units, supplied in indivisible pack quantities with delivery time on request***

SIRIUS

| Devices | Size | Reusable | Multi-unit | | | |
|---|---|---|---|---|---|---|
| | | **X95** (1/1 ENK) | **W95** (1/1 ENK) | **W96** (1/2 ENK) | **W97** (1/4 ENK) | **W98** (1/8 ENK) |
| **3RT2 contactors** | | | | | | |
| 3RT201.-1A..1/-1A..2 | S00 | 144 | -- | 72 | 40 | -- |
| 3RT201.-1B..1/-1B..2 | S00 | 72 | -- | 72 | 40 | -- |
| 3RT201.-2A.../-2B... | S00 | 120 | -- | 60 | 32 | -- |
| 3RT202.-1A..0/-2B..0 | S0 | 48 | -- | 24 | 12 | -- |
| 3RT202.-2A..0/-2B..0 | S0 | 40 | -- | 18 | 8 | -- |
| 3RT203.-....0 | S2 | 30 | -- | 15 | 6 | -- |
| 3RT203.-....4 | S2 | 30 | -- | 15 | -- | -- |
| **3RH29 snap-on auxiliary switches** | | | | | | |
| 3RH2911-1F./-1GA/-1HA | -- | 351 | -- | 240 | 120 | 60 |
| 3RH2911-2F./-2G./-2H./-2X. | -- | 321 | -- | 196 | 100 | 50 |
| 3RH2911-2D. | -- | 321 | -- | -- | -- | -- |
| **3RH21 contactor relays** | | | | | | |
| 3RH21..-1A..0 | S00 | 144 | -- | 72 | 40 | -- |
| 3RH21..-1B..0 | S00 | 72 | -- | 72 | 40 | -- |
| 3RH21..-2A..0/-2B..0 | S00 | 120 | -- | 60 | 32 | -- |
| **3RV2 motor starter protectors** | | | | | | |
| 3RV2011-...10/-...15 | S00 | 43 | -- | 24 | 12 | -- |
| 3RV2011-...20/-...25 | S00 | 40 | -- | 16 | 8 | -- |
| 3RV2021-...10/-...15 | S0 | 43 | -- | 24 | 12 | -- |
| 3RV2021-...20/-...25 | S0 | 35 | -- | 16 | 8 | -- |
| 3RV2031-....0/-....5 | S2 | 24 | -- | 12 | 5 | -- |
| **3RU2 thermally delayed overload relays** | | | | | | |
| 3RU2116-..B0 | S00 | 64 | -- | 32 | 16 | -- |
| 3RU2116-..C0 | S00 | 56 | -- | 24 | 12 | -- |
| 3RU2126-..B0 | S0 | 56 | -- | 32 | 16 | -- |
| 3RU2126-..C0 | S0 | 48 | -- | 24 | 12 | -- |
| 3RU2136-..B0 | S2 | 36 | -- | 18 | -- | -- |

When ordering products in multi-unit packaging for devices from the SIRIUS range, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code **"W9."** must be specified.

Ordering example:
3RT2015-1AB02-Z W97;
Order quantity 40 items →
Packed number of items 40

For products packed in reusable packaging, the article number must be supplemented with **"-Z"** and the order code **"X95"**.

Ordering example:
3RT2018-1AB01-Z X95;
Order quantity 144 items →
Packed number of items 144

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SIRIUS

Multi-unit packaging with order code X90 (on request)

| Devices | Size | Multi-unit or quantity per pack |
|---|---|---|
| | mm | X90 |
| **SlimLine Compact modules** | | |
| • 3RK2200-0C.00-2AA2 (SC17.5), 3RK1.05-.B.00-2AA2 (SC17.5F) | 17.5 | 16 |
| • 3RK..0.-..E00-2AA2 (SC22.5), 3RK1.07-...00-2AA2 (SC22.5) | 22.5 | 12 |
| **3RQ1 coupling relays** | | |
| • 3RQ1.00-.EB00, -.EW00, -.GB00, -.GW00 | 17.5 | 16 |
| • 3RQ1000-.HB00, -.HW00, -.LB00, -.LW00 | 22.5 | 12 |
| **3RQ2 coupling relays** | | |
| • 3RQ2000-..W0. | 22.5 | 12 |
| **3RM1 motor starters** | | |
| • 3RM1.0.-.AA.4 | 22.5 | 12 |
| **SIMOCODE pro S 3UF7 motor management and control devices** | | |
| • 3UF7020-1A.01-0, 3UF7600-1A.01-0 | 22.5 | 12 |
| **3RP25 electronic timing relays** | | |
| • 3RP2505-.A, 3RP2505-.C, 3RP251., 3RP2525-.A, 3RP2527, 3RP253., 3RP255. | 17.5 | 16 |
| • 3RP2505-.B, 3RP2505-.R, 3RP2525-.B, 3RP254., 3RP256., 3RP257. | 22.5 | 12 |
| **3RS2 temperature monitoring relays** | | |
| • 3RS2500-1...0, 3RS2600-1...0, 3RS2800-1...0, 3RS2900-1...0 | 22.5 | 12 |
| **3RN2 thermistor motor protection relays** | | |
| • 3RN2000-.A, 3RN2010-.C | 17.5 | 16 |
| • 3RN201.-.B, 3RN2013-.G, 3RN2023-.D | 22.5 | 12 |
| **3SK safety relays** | | |
| • 3SK1120, 3SK1220 | 17.5 | 16 |
| • 3SK1111, 3SK1112, 3SK1121, 3SK1122, 3SK1211, 3SK1230, 3SK2511 | 22.5 | 12 |

When ordering products in multi-unit packaging, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the order code **"X90"**must be specified.

Ordering examples:

- SC17.5F SlimLine Compact safety module 3RK1205-0BE00-2AA2-Z X90;
  Order quantity 16 items →
  Packed number of items 16
- SC22.5 analog SlimLine Compact module 3RK1207-0CE00-2AA2-Z X90;
  Order quantity 12 items →
  Packed number of items 12

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# Appendix

## Logistics

SIRIUS ACT

Multi-unit packaging with order code X90

| Pushbuttons and indicator lights | Multi-unit or quantity per pack<br>X90 |
|---|---|
| Complete units (3SU11) | 20 |
| Compact units (3SU12) | |
| • Acoustic signaling devices, pushbuttons with extended stroke, potentiometers | 50 |
| Actuating and signaling elements (3SU10) | |
| • Pushbuttons, illuminated pushbuttons, indicator lights | 100 |
| • Stop switches, twin pushbuttons, mushroom pushbuttons 30/40 mm, EMERGENCY STOP mushroom pushbuttons 30/40 mm, toggle switches, selector switches, key-operated switches, ID key-operated switches, coordinate switches | 50 |
| • Mushroom pushbuttons 60 mm, EMERGENCY STOP mushroom pushbuttons 60 mm | 40 |
| Holders without module (3SU15) | 100 |
| Modules for actuators and indicators (3SU14) | |
| • Contact modules | 150 |
| • LED modules | 50 |
| Enclosures (3SU18) | |
| • Empty plastic enclosures | |
| - 3SU1801-0AA00-0AA2, 3SU1801-0AA00-0AB1 | 24 |
| - 3SU1801-0AA00-0AC2 | 18 |
| Accessories (3SU19) | |
| • Sealing plugs, label holders, EMERGENCY STOP backing plates, labeling plates for potentiometers, EMERGENCY STOP labeling plates for enclosures without recesses and without inscription, single frames, dust caps for key-operated switches, adapters for mounting on DIN rails, protective collars for EMERGENCY STOP mushroom pushbuttons (40 mm, for 5 padlocks, yellow) | 100 |
| • Labeling plates | 150 |

When ordering products in multi-unit packaging for devices from the SIRIUS ACT range, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the ordering code **"X90"** must be specified.

Ordering example:
3SU1000-0AB20-0AA0-Z X90;
Order quantity 100 items →
Packed number of items 100

Multi-unit packaging with order code X05

| Pushbuttons and indicator lights | Multi-unit or quantity per pack<br>X05 |
|---|---|
| Holders without module (3SU15) | |
| • Plastic: 3SU1500-0AA10-0AA0 | 5 |
| • Metal: 3SU1510-0AA10-0AA0 | 5 |
| • Universal for plastic and metal: 3SU1550-0AA10-0AA0 | 5 |
| Modules for actuators and indicators (3SU14) | |
| • Contact modules for front plate mounting | 5 |
| - Screw terminals: 3SU1400-1AA10-1BA0, 3SU1400-1AA10-1CA0 | |
| - Spring-loaded terminals: 3SU1400-1AA10-3BA0, 3SU1400-1AA10-3CA0 | |
| • LED modules for front plate mounting | 5 |
| - Screw terminals: 3SU1401-1BB00-1AA0, 3SU1401-1BB20-1AA0, 3SU1401-1BB30-1AA0, 3SU1401-1BB40-1AA0, 3SU1401-1BB50-1AA0, 3SU1401-1BB60-1AA0 | |
| - Spring-loaded terminals: 3SU1401-1BB00-3AA0, 3SU1401-1BB20-3AA0, 3SU1401-1BB30-3AA0, 3SU1401-1BB40-3AA0, 3SU1401-1BB50-3AA0, 3SU1401-1BB60-3AA0 | |
| • LED modules for base mounting | 5 |
| - Screw terminals: 3SU1401-2BB00-1AA0, 3SU1401-2BB20-1AA0, 3SU1401-2BB30-1AA0, 3SU1401-2BB40-1AA0, 3SU1401-2BB50-1AA0, 3SU1401-2BB60-1AA0 | |
| - Spring-loaded terminals: 3SU1401-2BB00-3AA0, 3SU1401-2BB20-3AA0, 3SU1401-2BB30-3AA0, 3SU1401-2BB40-3AA0, 3SU1401-2BB50-3AA0, 3SU1401-2BB60-3AA0 | |

When ordering products in multi-unit packaging for devices from the SIRIUS ACT range, the article number of the product concerned must be supplemented with **"-Z"** and, in addition, the ordering code **"X05"**.

Ordering example:
3SU1500-0AA10-0AA0-Z X05;
Order quantity 5 items →
Packed number of items 5

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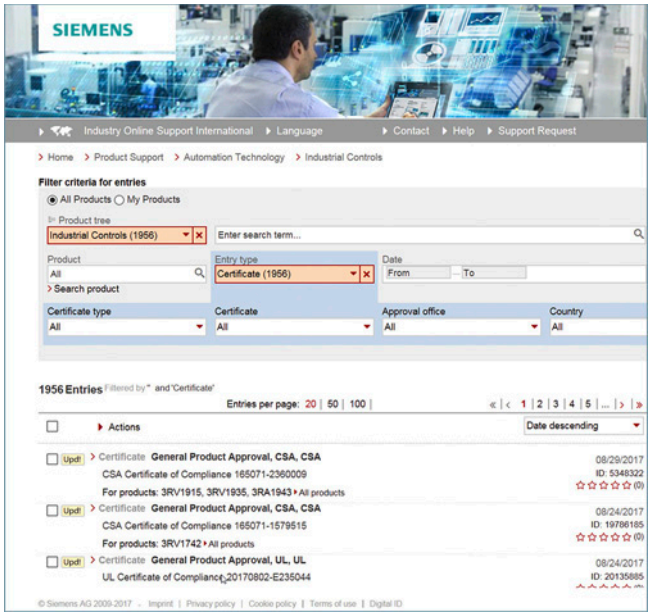
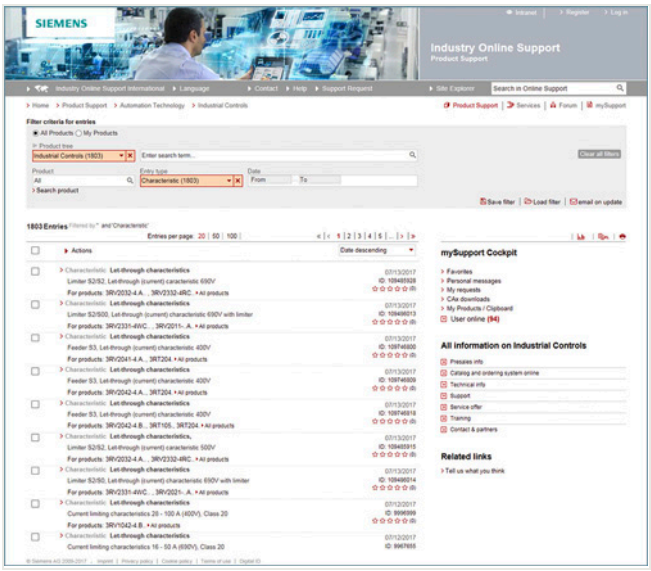
## Approvals, test certificates, characteristic curves

An overview of the certificates available for Industrial Control products along with more technical documentation can be consulted daily on the internet at:

www.siemens.com/sirius/approvals




Product support: Approvals/certificates




Product support: Characteristics

## Safety characteristics

In the following standards, the so-called B10 values for calculating the safety integrity or Safety Integrity Level (SIL) in functional safety at a high or continuous demand rate are required also for electromechanical switchgear:

- IEC 62061 "Safety of machines – Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- ISO 13849-1 "Safety of machines – Safety-related components of controls – Part 1: General Principles"

Failure rates of electromechanical components are required for calculating the safety integrity or Safety Integrity Level (SIL) in functional safety:
- in the manufacturing industry at a high demand rate
- in the process industry at a low demand rate

Further requirements are laid down in IEC 61511-1 "Functional safety – Safety instrumented systems for the process industry sector – Part 1: Framework, definitions, system, hardware and software requirements".

The German versions of the above standards are:
- EN 62061
- EN ISO 13849
- EN 61511-1

The Safety Evaluation in the TIA Selection Tool assists in calculating the safety functions as verification for the machine documentation. It is available free of charge at www.siemens.com/safety-evaluation.

More information such as notes on trainings and Safety Consulting as well as application examples with calculations are available at www.siemens.com/safety-integrated.

Definitions

$\lambda\,(t)\,dt$ is the probability that a unit which has not failed by a certain time $t$ will fail in the following interval $(t;\ t+dt)$.
Failure rates have the dimension 1/time unit, e.g. 1/h.
Failure rates for components are often specified in FIT (failures in time unit): 1 FIT equals $10^{-9}$/h.
From the failure rate it is possible to derive a (mathematical) distribution function of the failure probability:

$F(t) = 1 - \exp(-\lambda t)$, with $\lambda$ as constant failure rate

- The mean value of this exponential distribution is also referred to as:
  - Mean Time To Failure (MTTF) in the case of irreparable components; 63.2% of components fail by the MTTF.
  - Mean Operating Time Between Failures (MTBF) in the case of reparable components.
- $MTTF = 1/\lambda$
  (MTTF is a statistical mean value but no guarantee for endurance).

Electromechanical components are often irreparable components. In general, the failure rate of monitored units changes with age.

The B10 value for devices subject to wear is expressed in number of operating cycles:

- It is the number of operating cycles after which 10% of the test specimens fail in the course of an endurance test (or: the number of operating cycles after which 10% of the devices have failed).

For low demand rates (mainly in the process industry), the failure rate and not the B10 value is used to determine the failure probability.

The safety characteristics of electromechanical SIRIUS products can be found at https://support.industry.siemens.com/cs/ww/en/view/109739348 or in the SIEMENS Industry Online Support Portal (www.siemens.com/online-support) under the Entry ID: 109739348.

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# Appendix

## Standards and approvals

### Standards

| IEC | EN/EN IEC | Title |
|---|---|---|
| 60947-1<br>60947-2<br>60947-3 | 60947-1<br>60947-2<br>60947-3 | Low-voltage switchgear and controlgear: General rules<br>• Circuit-breakers<br>• Switches, disconnectors, switch-disconnectors and fuse-combination units |
| 60947-4-1<br>60947-4-2<br>60947-4-3 | 60947-4-1<br>60947-4-2<br>60947-4-3 | • Contactors and motor starters: Electromechanical contactors and motor starters<br>• Contactors and motor starters: Semiconductor motor controllers and starters, soft starters<br>• Contactors and motor starters: Semiconductor controllers and contactors for non-motor loads |
| 60947-5-1<br>60947-5-2<br>60947-5-3<br><br>60947-5-5<br><br>60947-5-6<br>60947-5-7<br>60947-5-8<br>60947-5-9 | 60947-5-1<br>60947-5-2<br>60947-5-3<br><br>60947-5-5<br><br>60947-5-6<br>60947-5-7<br>60947-5-8<br>60947-5-9 | • Control circuit devices and switching elements: Electromechanical control circuit devices<br>• Control circuit devices and switching elements: Proximity switches<br>• Control circuit devices and switching elements: Requirements for proximity devices with defined behavior under fault conditions<br>• Control circuit devices and switching elements: Electrical EMERGENCY STOP devices with mechanical latching function<br>• Control circuit devices and switching elements: DC interface for proximity sensors and switching amplifiers (NAMUR)<br>• Control circuit devices and switching elements: Requirements for proximity devices with analog output<br>• Control circuit devices and switching elements: Three-position enabling switches<br>• Control circuit devices and switching elements: Flow rate switches |
| 60947-6-1<br>60947-6-2 | 60947-6-1<br>60947-6-2 | • Multiple function equipment - Transfer switching equipment<br>• Multiple function equipment - Control and protective switching devices (or equipment) (CPS) |
| 60947-7-1<br>60947-7-2<br>60947-7-3<br>60947-7-4<br>60947-7-5 | 60947-7-1<br>60947-7-2<br>60947-7-3<br>60947-7-4<br>-- | • Ancillary equipment - Terminal blocks for copper conductors<br>• Ancillary equipment - Protective conductor terminal blocks for copper conductors<br>• Ancillary equipment - Safety requirements for fuse terminal blocks<br>• Ancillary equipment - PCB terminal blocks for copper conductors<br>• Ancillary equipment - Terminal blocks for aluminum conductors |
| 60947-8 | 60947-8 | • Control units for built-in thermal protection (PTC) for rotating electrical machines |
| 60947-9-1 | 60947-9-1 | • Low-voltage switchgear and controlgear - Active arc-fault mitigation systems - Arc quenching devices |
| 62026-2 | 62026-2 | • Network control devices (CDIs): Actuator sensor interface |
| 60269-1<br>60269-4 | 60269-1<br>60269-4 | Low-voltage fuses: General requirements<br>Low-voltage fuses: Supplementary requirements for fuse-links for the protection of semiconductor devices |
| 60050-441 | -- | International Electrotechnical Vocabulary. Switchgear, controlgear and fuses |
| 61439-1<br>61439-2<br>61439-3<br><br>61439-4<br><br>61439-5<br>61439-6<br>61439-7<br><br>--<br><br>61140 | 61439-1<br>61439-2<br>61439-3<br><br>61439-4<br><br>61439-5<br>61439-6<br>--<br><br>50274<br><br>61140 | Low-voltage switchgear and controlgear assemblies: General rules<br>Low-voltage switchgear and controlgear assemblies: Power switchgear and controlgear assemblies<br>Low-voltage switchgear and controlgear assemblies: Distribution boards intended to be operated by ordinary persons (DBO)<br>Low-voltage switchgear and controlgear assemblies: Particular requirements for assemblies for construction sites (ACS)<br>Low-voltage switchgear and controlgear assemblies: Assemblies for power distribution in public networks<br>Low-voltage switchgear and controlgear assemblies: Busbar trunking systems (busways)<br>Low-voltage switchgear and controlgear assemblies: Assemblies for specific applications such as marinas, camping sites, market squares, electric vehicle charging stations<br>Low-voltage switchgear and controlgear assemblies: Protection against electric shock - Protection against unintentional direct contact with hazardous live parts<br>Low-voltage switchgear and controlgear assemblies: Protection against electric shock - Common aspects for installation and equipment |
| 60664-1 | 60664-1 | Insulation coordination for electrical equipment in low-voltage systems;<br>Principles, requirements and tests |
| 60204-1<br>60079-0<br>60079-14 | 60204-1<br>60079-0<br>60079-14 | Electrical equipment of machines: General requirements<br>Hazardous areas - Equipment - General requirements<br>Hazardous areas - Electrical installations design, selection and erection |
| 61810-1<br>61812-1 | 61810-1<br>61812-1 | Electromechanical elementary relays: General requirements and safety requirements<br>Time relays for industrial and residential use: Requirements and tests |
| 60999-1<br><br><br><br>60999-2 | 60999-1<br><br><br><br>60999-2 | Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units: General requirements and particular requirements for clamping units for conductors from 0.2 $mm^2$ up to 35 $mm^2$ (included)<br>Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units: Particular requirements for clamping units for conductors above 35 $mm^2$ up to 300 $mm^2$ (included) |
| IEC/TR 61000-4-1 | 61000-4-1 | Electromagnetic compatibility (EMC); Test and measuring techniques; Overview of IEC 61000-4 series |
| 61000-6-2<br>61000-6-3<br><br>61000-6-4 | 61000-6-2<br>61000-6-3<br><br>61000-6-4 | Electromagnetic compatibility (EMC); Generic standards - Immunity for industrial environments<br>Electromagnetic compatibility (EMC); Generic standards - Emission standard for residential, commercial and light-industrial environments<br>Electromagnetic compatibility (EMC); Generic standards - Emission standard for industrial environments |
| 61869-1 | 61869-1 | Instrument transformers: General requirements |
| 61869-2 | 61869-2 | Instrument transformers: Additional requirements for current transformers |

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| UL | CSA C22.2 | ASME | JIS | Title |
|---|---|---|---|---|
| 508 | -- | -- | -- | Industrial control equipment |
| 60947-1 | No. 60947-1 | -- | -- | Low-voltage switchgear and controlgear: General rules |
| 60947-4-1 | No. 60947-4-1 | -- | -- | Low-voltage switchgear and controlgear: Contactor and motor starters - Electromechanical contactors and motor starters |
| 60947-4-2 | No. 60947-4-2 | -- | -- | Low-voltage switchgear and controlgear: Contactors and motor-starters - AC semiconductor motor controllers and starters |
| 60947-5-1 | No. 60947-5-1 | -- | -- | Low-voltage switchgear and controlgear: Control circuit devices and switching elements - Electromechanical control circuit devices |
| 60947-5-5 | 60947-5-5 | -- | -- | Low-voltage switchgear and controlgear: Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function |
| 489 | No. 5 | -- | -- | Molded case circuit breakers, molded case switches, and circuit breaker enclosures |
| 1012 | -- | -- | -- | Power units other than CLASS 2 |
| 1059 | -- | -- | -- | Terminal blocks |
| 486A-486B | No. 65 | -- | -- | Wire connectors |
| 486E | -- | -- | -- | Equipment wiring terminals for use with aluminum and/or copper conductors |
| 50 | No. 94.1 | -- | -- | Enclosures for electrical equipment - Non-environmental considerations |
| 50E | No. 94.2 | -- | -- | Enclosures for electrical equipment - Environmental considerations |
| -- | No. 14 | -- | -- | Industrial control equipment |
| -- | No. 107.1 | -- | -- | Power conversion equipment |
| -- | -- | A17.5/ CSA B 44.1 | -- | Elevator and escalator electrical equipment |
| -- | -- | -- | C 8201-4-1 | Low-voltage switchgear and controlgear; Contactors and motor-starters |

## Approval requirements valid in different countries

Siemens low-voltage switchgear and controlgear are designed, manufactured and tested according to the relevant German standards (DIN and VDE), IEC publications and European standards (EN) as well as CSA and UL standards. The standards assigned to the single devices are stated in the relevant parts of this catalog.

As far as is economically viable, the requirements of the various standards valid in other countries are also taken into account in the design of the equipment.

In some countries an approval is required for certain low-voltage switchgear and controlgear components (see table below). Depending on the market requirements, these components have been submitted for approval to the authorized testing institutes.

In some cases, CSA for Canada and UL for the USA only approve special switchgear versions. Such special versions are listed separately from the standard versions in the individual parts of this catalog.

For this equipment, partial limitations of the maximum permissible voltages, currents and ratings can be imposed, or special approval and, in some cases, special identification is required.

For use on board ship, the specifications of the marine classification societies must also be observed (see table on page16/12). In some cases, they require type tests of the components to be approved.

The Chinese certification system has changed. As of November 1, 2020, the self-declaration by Siemens (Self-Declaration of Compliance (SDOC)) forms the basis of CCC and the import to China. The CCC scope, product labeling, certification procedures, implementation rules in manufacturing and regulations regarding the import to China have remained unchanged. All CCC certificates issued by CQC have been transferred to SDOCs and all CCC certificates issued by CQC are invalid as of November 1, 2020.

UKCA: As of January 1, 2023, all devices to be marketed in Great Britain require a manufacturer's declaration (UK Declaration of Conformity) and must be supplied with a IKCA mark. The declaration is based on UK regulations and the underlying British standards (BS). Alternatively, EN standards can also be applied. Otherwise, the same requirements apply as for the EU Declaration of Conformity.

## Testing bodies, approval identification and approval requirements

| **Country** | Canada | USA | China | Armenia, Belarus, Kazakhstan Kirgizstan, Russia |
|---|---|---|---|---|
| **Government-appointed or private, officially recognized testing bodies** | CSA UL (USA) | UL | Self-Declaration of Compliance (Siemens) | Official national regulation/TR |
| **Mark of conformity** | c UL c<br>c US<br>c UL US | UL<br>c US<br>c UL US | CCC | EAC |
| **Approval requirement** | + | + | + | + |
| **Remarks** | -- | -- | -- | Eurasian customs union |

For more information about the approval marks, see page 16/14.

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## Standards and approvals

### Marine classification societies

| Country | Germany Norway | Great Britain | France | CIS | Italy | Poland | USA |
|---|---|---|---|---|---|---|---|
| **Name** | DNV | Lloyds Register of Shipping | Bureau Veritas | Russian Maritime Register of Shipping | Registro Italiano Navale | Polski Rejestre Statków | American Bureau of Shipping |
| **Codes** | DNV | LR | BV | RS | RINA | PRS | ABS |

### CE marking

Manufacturers of products which fall within the subject area to which EU directives apply must identify their products, operating instructions or packaging with a CE mark of conformity.

By attaching the CE marking, the manufacturer confirms that the product conforms to the relevant basic requirements of all directives applicable to the product. The mark of conformity is a mandatory requirement for putting products into circulation throughout the EU.

All the products in this catalog are in conformance with the relevant specific EU directives and bear the CE mark of conformity CE.

- Low-voltage directive
- EMC directive
- Machinery directive
- ATEX directive
- RED directive
- RoHS directive

### Accident prevention

Test certificates and approvals from DGUV, SUVA (Swiss institute for accident prevention), TÜV or VDE are available for some devices in safety control systems. For details, see the respective product descriptions.

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## Ex protection certificates for SIRIUS controls

Controls that are installed in a potentially explosive atmosphere or motor protection devices that protect a motor installed in a potentially explosive atmosphere against overloading or a pump in said atmosphere from dry running must comply with certain special requirements. These requirements are laid down in the following standards:

- EN 50495
- EN IEC 60079-0
- EN 60079-1
- EN 60079-7
- EN 60079-11
- EN 60079-14
- EN 60079-17
- EN 60079-31
- EN IEC 60947-1
- EN IEC 60947-4-1
- EN 60947-4-2
- EN 60947-5-1
- EN 60947-8
- EN ISO/IEC 80079-34
- EN ISO 80079-36
- EN ISO 80079-37

### *Certification*

Controls and motor protection devices that are brought into circulation within the member states of the EU in accordance with EU directive 2014/34/EU must have been constructed and tested according to the above-mentioned standards and must have a declaration of conformity from the manufacturer based on a prototype test certificate.

The quality management (QM) system of the manufacturer is subject to certain requirements and a "QM certificate" must be obtained for the manufacturer from a recognized authority.

### *Certification of the QM system*

A certificate of approval for quality assurance production has been issued by DEKRA Testing and Certification GmbH[1)] under the number BVS 20 ATEX ZQS/E111 according to Directive 2014/34/EU. The quality management (QM) system is also checked within the scope of the IEC Ex Scheme. Conformity with the requirements is confirmed using document DE/BVS/QAR15.0002/08.

These certificates are valid for equipment groups I and II and categories M2 and 2: Safety and control devices for electrical equipment.

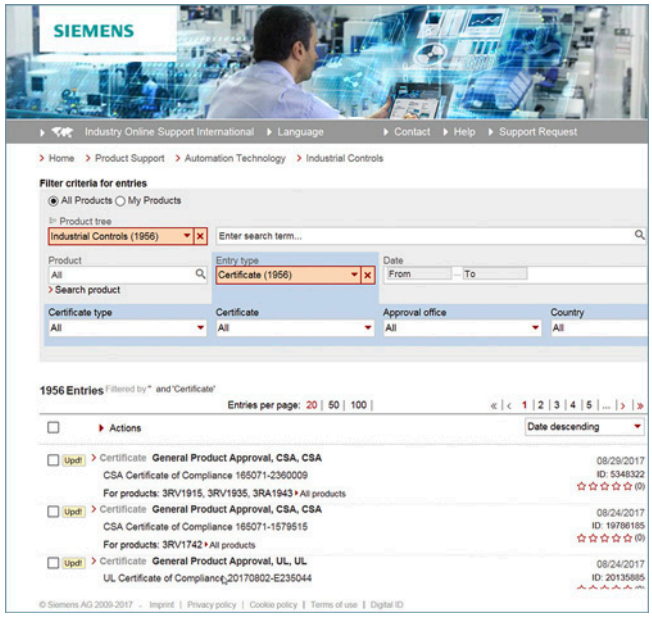
### *Certificates*

Declarations of conformity and prototype test certificates are available at www.siemens.com/online-support for viewing and downloading. As far as explosion protection is concerned, these are available for the following products:

- 3RB, 3RK, 3RM, 3RN, 3RU, 3RV, 3RW, 3UF motor protection devices
- 3RS2 temperature monitoring relays
- 3SU1 LED modules

You can find more information about industrial controls for applications in explosion-protected areas at www.siemens.com/sirius/atex.

1) DEKRA Testing and Certification GmbH
The certification authority of "DEKRA Testing and Certification GmbH" with authority number 0158 according to Article 13 of Directive 2014/34/EU of the European Parliament and Council certifies that Siemens Amberg, Cham, Suzhou and Trutnov maintains a quality assurance system for production that satisfies Appendices IV and VII of this Directive.




Selection box

Description of certificate with view and download option

### *Identifying markings*

All equipment must be marked according to the ATEX guideline. The ATEX identification code contains the equipment group, the approved environment, the number of the certification authority and other technical data required for explosion protection.

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## Standards and approvals

### Certificate of the AS-International Association for AS-Interface products

AS-Interface products are tested and certified by the AS-International Association. The products have been tested in an accredited test laboratory according to testing guidelines.

### Special standards for the USA and Canada

In the USA and Canada, for machine tools and processing machines in particular, supply lines are laid using rubber insulated cable enclosed in heavy-duty steel piping similar to that used for gas or water pipe systems.

The tubing system must be completely watertight and electrically conductive (especially sleeving and elbows). Since the tubing system can also be used for grounding, the threaded cable entries of enclosed units must be fitted with PG or metric thread metal adapters for the tube thread. The necessary adapters are specified for the switchgear as accessories; they should be ordered separately unless otherwise specified.

Low-voltage switchgear and controlgear for auxiliary circuits (e.g. contactor relays, commanding and signaling devices and auxiliary switches/auxiliary contacts in general) are generally only approved by CSA and UL for **"Heavy Duty"** or **"Standard Duty"** and are identified either with these specifications in addition to the maximum permissible voltage or by using an abbreviation.

The abbreviations are harmonized with IEC 60947-5-1 Annex 1 Table A.1 and correspond to the stated utilization categories.

For various switching devices detailed in the catalog, a note has been included to the effect that, above a certain voltage, the auxiliary switches/auxiliary contacts can only be used if they have the same polarity. This means that the input terminals can only be connected to the same pole of the control voltage, e.g. "600 V AC above 300 V AC same polarity".

***Distinguishing features of UL approvals (for USA and Canada)***

| Recognized Component | Listed Product |
|---|---|
| Devices are identified on the rating plate using the "UL recognition mark":<br>USA: , c US<br>Canada: c , c US | Devices are identified using the "UL listing mark" on the rating plate<br>e.g. USA: LISTED XXX IND. CONT. EQ. Canada: c LISTED XXX IND. CONT. EQ.<br>(XXX stands for: UL Code Classification Number) |
| Devices are approved as modules for "factory wiring" or other conditions of acceptability, i.e.:<br>As devices for installation in control systems, which are selected, installed, wired and tested entirely by trained personnel in factories, workshops or elsewhere, **according to the operating conditions**. | Devices are approved for "field wiring", i.e.:<br>• As devices for installation in control systems, which are completely wired by trained personnel in factories, workshops or elsewhere.<br>• As single devices for sale in retail outlets in the USA/Canada. |
| If devices are or c approved as "listed products", they are also approved as or c "recognized components". | |

For more information about UL and CSA, see page 16/11.

### Special standards for Russia, Australia and China

***EAC approval for Armenia, Belarus, Kazakhstan, Kirgizstan, Russia***

EAC mark

Since February 15, 2013, Russia, Kazakhstan, Belarus and other countries have been united in the Eurasian EAC customs union.

All devices delivered to the customs union must have these customs certifications.

***RCM approval for Australia***

RCM mark

The RCM mark is required for marketing Siemens electronic devices in Australia. Electronic devices must provide proof of EMC clearance in Australia, similar to the CE mark of conformity laid down by the EMC directive applicable in the EU and bear the "RCM" mark.

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## Quality management

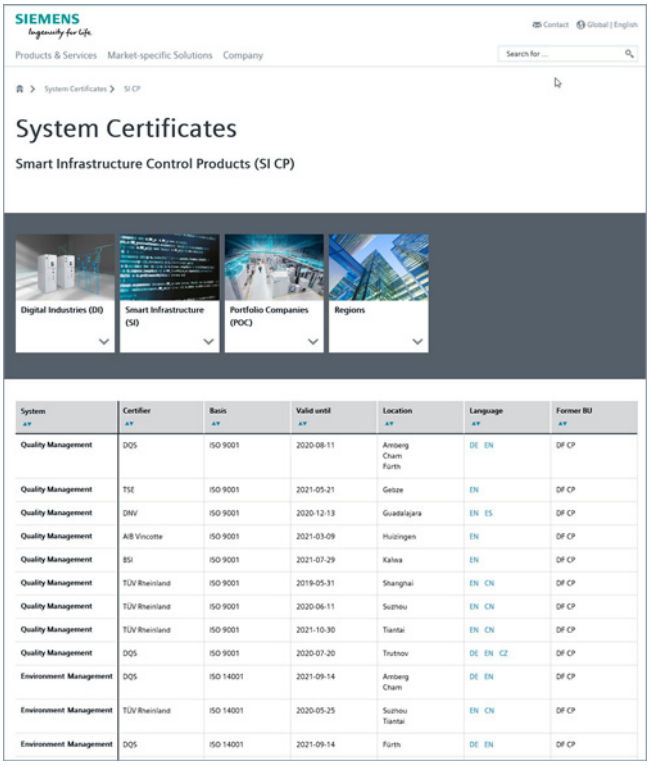
The quality management system of our "Electrical Products" Business Unit in the "Smart Infrastructure" business complies with the international standard EN ISO 9001.

The products and systems described in this catalog are developed, manufactured and sold under application of a certified quality management system according to ISO 9001.

## Certificates

For information about available certifications of the quality management system for Industrial Controls products, please visit website address:

https://new.siemens.com/global/en/general/system-certificates/si-ep.html




| System | Certifier | Basis | Valid until | Location | Language | Former BU |
|---|---|---|---|---|---|---|
| Quality Management | DQS | ISO 9001 | 2020-08-11 | Amberg<br>Cham<br>Fürth | DE EN | DF CP |
| Quality Management | TSE | ISO 9001 | 2021-05-21 | Gebze | EN | DF CP |
| Quality Management | DNV | ISO 9001 | 2020-12-13 | Guadalajara | EN ES | DF CP |
| Quality Management | AIB Vincotte | ISO 9001 | 2021-03-09 | Huizingen | EN | DF CP |
| Quality Management | BSI | ISO 9001 | 2021-07-29 | Kalwa | EN | DF CP |
| Quality Management | TÜV Rheinland | ISO 9001 | 2019-05-31 | Shanghai | EN CN | DF CP |
| Quality Management | TÜV Rheinland | ISO 9001 | 2020-06-11 | Suzhou | EN CN | DF CP |
| Quality Management | TÜV Rheinland | ISO 9001 | 2021-10-30 | Tiantai | EN CN | DF CP |
| Quality Management | DQS | ISO 9001 | 2020-07-20 | Trutnov | DE EN CZ | DF CP |
| Environment Management | DQS | ISO 14001 | 2021-09-14 | Amberg<br>Cham | DE EN | DF CP |
| Environment Management | TÜV Rheinland | ISO 14001 | 2020-05-25 | Suzhou<br>Tiantai | EN CN | DF CP |
| Environment Management | DQS | ISO 14001 | 2021-09-14 | Fürth | DE EN | DF CP |

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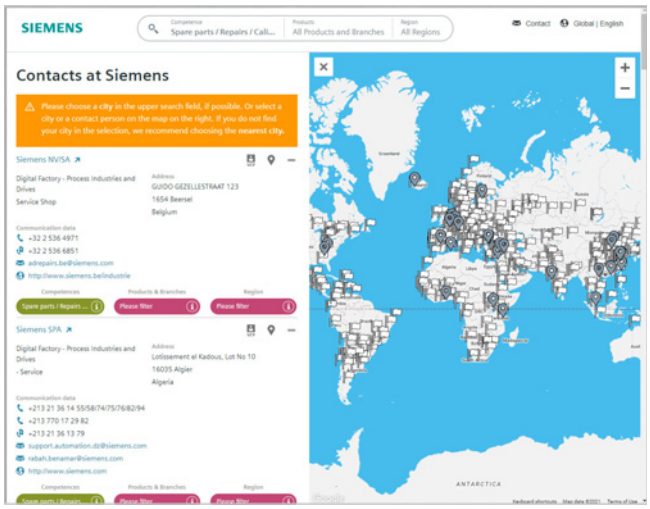
## Partners at Siemens

### Overview




At your service locally, around the globe for consulting, sales, training, service, support, spare parts on the entire portfolio of Siemens.

Your partner can be found in our Personal Contacts Database at:
www.siemens.com/automation-contact

You start by selecting

- the required competence,
- products and branches,
- a country and a city

or by a

- location search or free text search.

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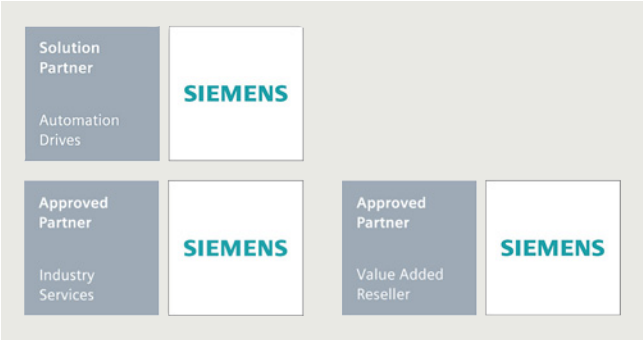
## Overview

***Siemens Solution and Approved Partner – Partners for your success***




Highest competence in automation and drive technology

Siemens works closely together with selected partner companies around the world in order to ensure that customer requirements for all aspects of automation and drives are fulfilled as best as possible – wherever you are, and whatever the time.

We place great value on our customers acting in accordance with the same ideals which characterize Siemens as a whole: Competence, professionalism and quality. That is why continuous development through qualification and certification measures in line with global standards is a central aspect of our Partner Program. This means that with our partners, you benefit from the same high quality standards all over the world.
The partner emblem is the symbol for tried and tested quality.

The partner network for industry

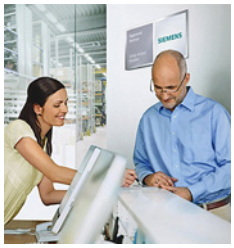
The Siemens Partner Program offers you expertise and experience close at hand.

Within our global network, we distinguish between Solution Partners and Approved Partners. We currently work with more than 1,500 Solution Partners around the world. Our network of over 150 Approved Partners continues to grow. In more than 80 countries worldwide.

Siemens Solution Partner – Automation Drives

At present we are working with more than 1,500 Solution Partners worldwide. They are characterized by extensive application, system and sector knowledge, as well as proven project experience, and are able to implement future-proof tailored solutions of the highest quality, based on our product and system portfolio.

Siemens Approved Partner – Value Added Reseller



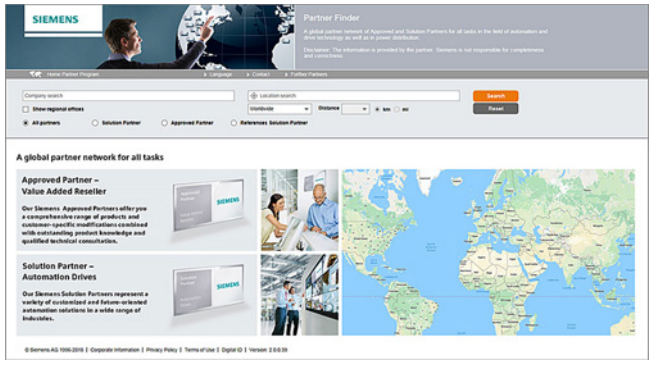
With their detailed technical knowledge, Siemens Approved Partners – Value Added Resellers offer a combination of products and services that range from specialist technologies and customized modifications to the provision of high-quality system and product packages. They also provide qualified technical support and assistance.

Siemens Approved Partner – Industry Services

Siemens Approved Partner – Industry Services put their unique expertise entirely at the service of enhancing your productivity and can be instrumental in ensuring the availability of your plants.

***Partner Finder***

The ideal partner for your task is just a mouse click away!




In the Siemens global Solution Partner Program, customers are certain to find the optimum partner for their specific requirements – with no great effort. The Partner Finder is basically a comprehensive database that showcases the profiles of all our partners.

Easy selection:
Set filters in the search screen form according to the criteria that are relevant to you. You can also directly enter the name of an existing partner.

Skills at a glance:
Gain a quick insight into the specific competencies of any particular partner with the reference reports.

Direct contact option:
Use our electronic query form:

www.siemens.com/partnerfinder

Additional information of the Siemens Parners for industry is available online at:

www.siemens.com/partnerprogram

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## External partners

### Our partner companies – your partners

- **AXELENT GmbH**
  Internet: www.axelent.de
- **Brühl Safety GmbH**
  Internet: www.bruehl-safety.com
- **Conta-Clip Verbindungstechnik GMBH**
  Internet: www.conta-clip.de
- **EPCOS AG**
  A TDK Group Company
  Internet: www.epcos.de
- **EPHY-Mess**
  **Gesellschaft für Elektro-Physikalische Messgeräte mbH**
  Internet: www.ephy-mess.de
- **FESTO AG & Co. KG**
  Internet: www.festo.de
- **GMC-I Messtechnik GmbH**
  Internet: www.gossenmetrawatt.com
- **Harting Customised Solutions GmbH & Co. KG**
  Internet: www.Harting.com/solution-partner
- **Jacob GmbH**
  Elektrotechnische Fabrik
  Email: jacob@jacob-gmbh.de
- **KnorrTec**
  Internet: www.knorrtec.de
- **U. I. Lapp GmbH**
  Email: info@lappkabel.de
  Internet: www.lappkabel.de
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  Internet: www.murrplastik.de
- **Wieland Electric GmbH**
  Email: info@wieland-electric.com

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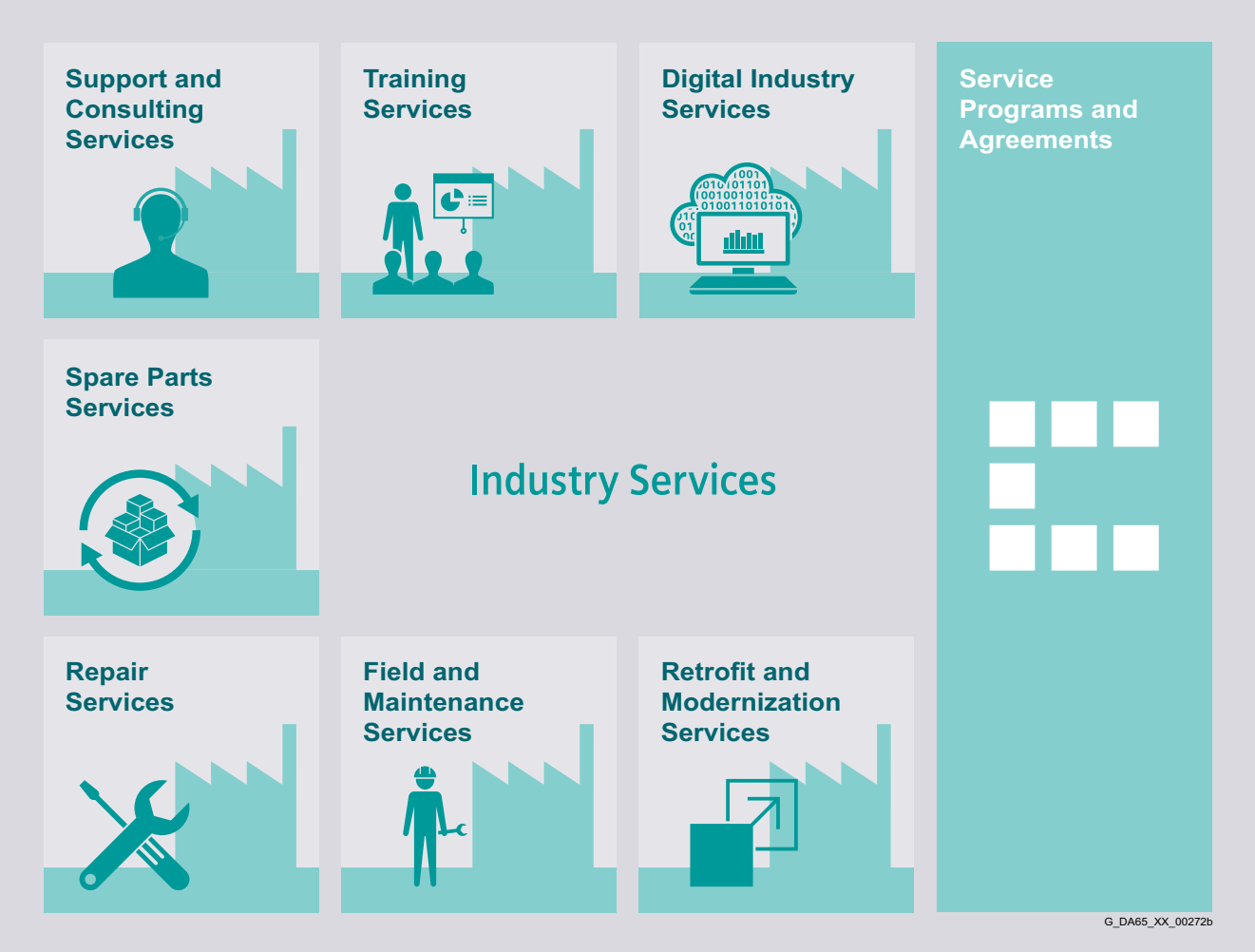
## Overview




***Keep your business running and shaping your digital future – with Industry Services***

Optimizing the productivity of your equipment and operations can be a challenge, especially with constantly changing market conditions. Working with our service experts makes it easier. We understand your industry's unique processes and provide the services needed so that you can better achieve your business goals.

You can count on us to maximize your uptime and minimize your downtime, increasing your operations' productivity and reliability. When your operations have to be changed quickly to meet a new demand or business opportunity, our services give you the flexibility to adapt. Of course, we take care that your production is protected against cyber threats. We assist in keeping your operations as energy and resource efficient as possible and reducing your total cost of ownership. As a trendsetter, we ensure that you can capitalize on the opportunities of digitalization and by applying data analytics to enhance decision making: You can be sure that your plant reaches its full potential and retains this over the longer lifespan.

You can rely on our highly dedicated team of engineers, technicians and specialists to deliver the services you need – safely, professionally and in compliance with all regulations. We are there for you, where you need us, when you need us.

www.siemens.com/industryservices

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**Overview** (continued)

### Digital Industry Services

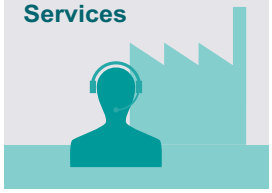
Digital Industry Services make your industrial processes transparent to gain improvements in productivity, asset availability, and energy efficiency.

Production data is generated, filtered and translated with intelligent analytics to enhance decision-making.

This is done whilst taking data security into consideration and with continuous protection against cyber-attack threats.

www.siemens.com/global/en/products/services/industry/digital-industry-services.html

### Support and Consulting Services



**Industry Online Support** site for comprehensive information, application examples, FAQs and support requests.

**Technical and Engineering Support** for advice and answers for all inquiries about functionality, handling, and fault clearance. The Service Card as prepaid support for value added services such as Priority Call Back or Extended Support offers the clear advantage of quick and easy purchasing.

**Information & Consulting Services**, e.g. SIMATIC System Audit; clarity about the state and service capability of your automation system or Lifecycle Information Services; transparency on the lifecycle of the products in your plants.

https://support.industry.siemens.com/cs/ww/en/sc/2235

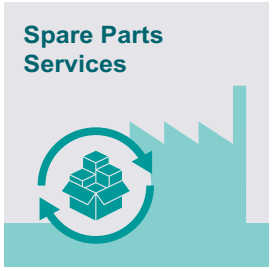
### Training Services

From the basics and advanced to specialist skills, SITRAIN courses provide expertise right from the manufacturer – and encompass the entire spectrum of Siemens products and systems for the industry.

Worldwide, SITRAIN courses are available wherever you need a training course in more than 170 locations in over 60 countries.

https://support.industry.siemens.com/cs/ww/en/sc/2226

### Spare Parts Services



Spare Parts Services are available worldwide for smooth and fast supply of spare parts – and thus optimal plant availability. Genuine spare parts are available for up to ten years. Logistic experts take care of procurement, transport, custom clearance, storage and order management. Reliable logistics processes ensure that components reach their destination as needed.

Since not all spare parts can be kept in stock at all times, Siemens offers a preventive measure for spare parts provisioning on the customer's premises with optimized **Spare Parts Packages** for individual products, custom-assembled drive components and entire integrated drive trains – including risk consulting.

**Asset Optimization Services** help you design a strategy for parts supply where your investment and carrying costs are reduced and the risk of obsolescence is avoided.

https://support.industry.siemens.com/cs/ww/en/sc/2110

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**Overview** (continued)

Repair Services are offered on-site and in regional repair centers for fast restoration of faulty devices' functionality.

Also available are extended repair services, which include additional diagnostic and repair measures, as well as emergency services.

https://support.industry.siemens.com/cs/ww/en/sc/2154

Provide a cost-effective solution for the expansion of entire plants, optimization of systems or upgrading existing products to the latest technology and software, e.g. migration services for automation systems.

Service experts support projects from planning through commissioning and, if desired over the entire extended lifespan, e.g. Retrofit for Integrated Drive Systems for an extended lifetime of your machines and plants.

https://support.industry.siemens.com/cs/ww/en/sc/2286

Siemens specialists are available globally to provide expert field and maintenance services, including commissioning, functional testing, preventive maintenance and fault clearance.

All services can be included in customized service agreements with defined reaction times or fixed maintenance intervals.

https://support.industry.siemens.com/cs/ww/en/sc/2265

A technical Service Program or Agreement enables you to easily bundle a wide range of services into a single annual or multi-year agreement.

You pick the services you need to match your unique requirements or fill gaps in your organization's maintenance capabilities.

Programs and agreements can be customized as KPI-based and/or performance-based contracts.

https://support.industry.siemens.com/cs/ww/en/sc/2275

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## Overview

Siemens Industry and Online Support with some 1.7 million visitors per month is one of the most popular web services provided by Siemens. It is the central access point for comprehensive technical know-how about products, systems and services for automation and drives applications as well as for process industries.

In connection with the challenges and opportunities related to digitalization you can look forward to continued support with innovative offerings.

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## Overview

### *Software types*

Software requiring a license is categorized into types.
The following software types have been defined:

- Engineering software
- Runtime software

### *Engineering software*

This includes all software products for creating (engineering) user software, e.g. for configuring, programming, parameterizing, testing, commissioning or servicing.

Data generated with engineering software and executable programs can be duplicated for your own use or for use by third-parties free-of-charge.

### *Runtime software*

This includes all software products required for plant/machine operation, e.g. operating system, basic system, system expansions, drivers, etc.

The duplication of the runtime software and executable programs created with the runtime software for your own use or for use by third-parties is subject to a charge.

You can find information about license fees according to use in the ordering data (e.g. in the catalog). Examples of categories of use include per CPU, per installation, per channel, per instance, per axis, per control loop, per variable, etc.

Information about extended rights of use for parameterization/configuration tools supplied as integral components of the scope of supply can be found in the readme file supplied with the relevant product(s).

### *License types*

Siemens Industry Automation & Drive Technologies offers various types of software license:

- Floating license
- Single license
- Rental license
- Rental floating license
- Trial license
- Demo license
- Demo floating license

### *Floating license*

The software may be installed for internal use on any number of devices by the licensee. Only the concurrent user is licensed. The concurrent user is the person using the program. Use begins when the software is started.
A license is required for each concurrent user.

### *Single license*

Unlike the floating license, a single license permits only one installation of the software per license.

The type of use licensed is specified in the ordering data and in the Certificate of License (CoL). Types of use include for example per instance, per axis, per channel, etc.

One single license is required for each type of use defined.

### *Rental license*

A rental license supports the "sporadic use" of engineering software. Once the license key has been installed, the software can be used for a specific period of time (the operating hours do not have to be consecutive).
One license is required for each installation of the software.

### *Rental floating license*

The rental floating license corresponds to the rental license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

### *Trial license*

A trial license supports "short-term use" of the software in a non-productive context, e.g. for testing and evaluation purposes. It can be transferred to another license.

### *Demo license*

The demo license support the "sporadic use" of engineering software in a non-productive context, for example, use for testing and evaluation purposes. It can be transferred to another license. After the installation of the license key, the software can be operated for a specific period of time, whereby usage can be interrupted as often as required.

One license is required per installation of the software.

### *Demo floating license*

The demo floating license corresponds to the demo license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

### *Certificate of License (CoL)*

The CoL is the licensee's proof that the use of the software has been licensed by Siemens. A CoL is required for every type of use and must be kept in a safe place.

### *Downgrading*

The licensee is permitted to use the software or an earlier version/release of the software, provided that the licensee owns such a version/release and its use is technically feasible.

### *Delivery versions*

Software is constantly being updated.
The following delivery versions

- PowerPack
- Upgrade

can be used to access updates.

Existing bug fixes are supplied with the ServicePack version.

### *PowerPack*

PowerPacks can be used to upgrade to more powerful software. The licensee receives a new license agreement and CoL (Certificate of License) with the PowerPack. This CoL, together with the CoL for the original product, proves that the new software is licensed.
A separate PowerPack must be purchased for each original license of the software to be replaced.

### *Upgrade*

An upgrade permits the use of a new version of the software on the condition that a license for a previous version of the product is already held.
The licensee receives a new license agreement and CoL with the upgrade. This CoL, together with the CoL for the previous product, proves that the new version is licensed.
A separate upgrade must be purchased for each original license of the software to be upgraded.

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## Overview (continued)

***ServicePack***

ServicePacks are used to debug existing products. ServicePacks may be duplicated for use as prescribed according to the number of existing original licenses.

***License key***

Siemens Industry Automation & Drive Technologies supplies software products with and without license keys.

The license key serves as an electronic license stamp and is also the "switch" for activating the software (floating license, rental license, etc.).

The complete installation of software products requiring license keys includes the program to be licensed (the software) and the license key (which represents the license).

***Software Update Service (SUS)***

As part of the SUS contract, all software updates for the respective product are made available to you free of charge for a period of one year from the invoice date. The contract will automatically be extended for one year if it is not canceled three months before it expires.

The possession of the current version of the respective software is a basic condition for entering into an SUS contract.

You can download explanations concerning license conditions from https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

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## 1. General Provisions

By using this catalog you can purchase products (hardware, software and services) described therein from Siemens Aktiengesellschaft subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

### *1.1 For customers with a seat or registered office in European Union*

For customers with a seat or registered office in European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for stand-alone software products and software products forming a part of a product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany"[1)] and/or
- for consulting services the “Allgemeine Geschäftsbedingungen für Beratungsleistungen der Division DF – Deutschland” (available only in German) and/or
- for other services, the „Supplementary Terms and Conditions for Services (“BL”)[1)] and/or
- for other supplies the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1)].
  In case such supplies should contain Open Source Software, the conditions of which shall prevail over the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1)], a notice will be contained in the scope of delivery in which the applicable conditions for Open Source Software are specified. This shall apply mutatis mutandis for notices referring to other third party software components.

### *1.2 For customers with a seat or registered office outside European Union*

For customers with a seat or registered office outside European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for consulting services the "Standard Terms and Conditions for Consulting Services of the Division DF for Customers with a Seat or Registered Office Outside of Germany"[1)] and/or
- for other services the "International Terms & Conditions for Services"[1)] supplemented by "Software Licensing Conditions"[1)] and/or
- for other supplies of hard- and software the "International Terms & Conditions for Products"[1)] supplemented by "Software Licensing Conditions"[1)]

### *1.3 For customers with master or framework agreement*

To the extent our supplies and/or services offered are covered by an existing master or framework agreement, the terms and conditions of that agreement shall apply instead of T&C.

## 2. Prices

The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charge the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials.
A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

An exact explanation of the metal factor can be downloaded at:

https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

## 3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog – especially with regard to data, dimensions and weights given – these are subject to change without prior notice.

[1)] The text of the Terms and Conditions of Siemens AG can be downloaded at
https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

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### 4. Export Regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export may be subject to license. We shall indicate in the delivery details whether licenses are required under German, European and US export lists.

Our products are controlled by the U.S. Government (when labeled with "ECCN" unequal "N") and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. Government or as otherwise authorized by U.S. law and regulations. Products labeled with "AL" unequal "N" are subject to European/national export authorization.

The export indications can be viewed in advance in the description of the respective goods on the Industry Mall, our online catalog system. Only the export labels "AL" and "ECCN" indicated on order confirmations, delivery notes and invoices are authoritative.

Products without label, with label "AL:N"/"ECCN:N", or label "AL:9X9999"/"ECCN: 9X9999" may require authorization from responsible authorities depending on the final end-use, or the destination.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you shall comply with all applicable national and international (re-)export control regulations. In any event of such transfer of goods, works and services you shall comply with the (re-) export control regulations of the Federal Republic of Germany, of the European Union and of the United States of America.

Prior to any transfer of goods, works and services provided by us to a third party you shall in particular check and guarantee by appropriate measures that

- there will be no infringement of an embargo imposed by the European Union, by the United States of America and/ or by the United Nations by such transfer, by brokering of contracts concerning those goods, works and services or by provision of other economic resources in connection with those goods, works and services, also considering the limitations of domestic business and prohibitions of by-passing those embargos;
- such goods, works and services are not intended for use in connection with armaments, nuclear technology or weapons, if and to the extent such use is subject to prohibition or authorization, unless required authorization is provided;
- the regulations of all applicable Sanctioned Party Lists of the European Union and the United States of America concerning the trading with entities, persons and organizations listed therein are considered.

If required to enable authorities or us to conduct export control checks, you, upon request by us, shall promptly provide us with all information pertaining to the particular end customer, the particular destination and the particular intended use of goods, works and services provided by us, as well as any export control restrictions existing.

You acknowledge that under the EU embargo regulations against Iran, Syria and Russia respectively the sale of certain listed goods and related services is subject to authorization by the competent export control authorities of the European Union. If (i) the goods or services ordered by you are destined for Iran, Syria or Russia, and (ii) the contract for our supplies and/or services is subject to prior authorization of the competent export control authorities of the European Union, the contract between you and us shall come into force in this respect only upon granting of such authorization.

The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

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## Notes

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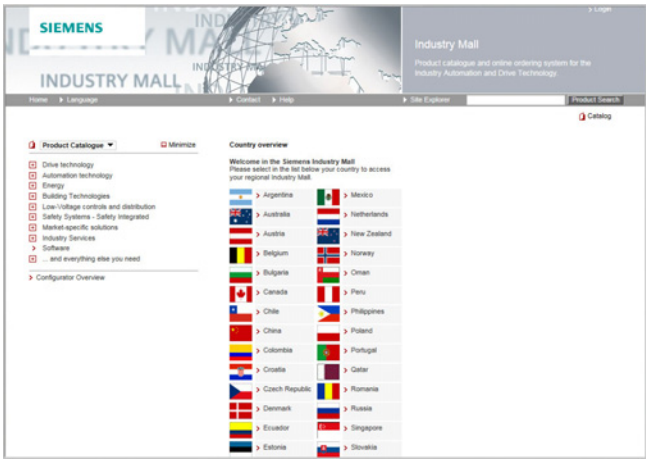
### *Easy product selection and ordering: Industry Mall*




Industry Mall

The Industry Mall is a Siemens AG Internet ordering platform. It provides you with online access to a comprehensive product spectrum that is presented in an informative, well-organized way.

Powerful search functions help you select the required products, while configurators enable you to configure complex product and system components quickly and easily. CAx data are also available for you to use.

Data transfer allows the entire procedure, from selection through ordering to tracking and tracing, to be carried out online. Availability checks, individual customer discounting, and quotation preparation are also possible.

www.siemens.com/industrymall

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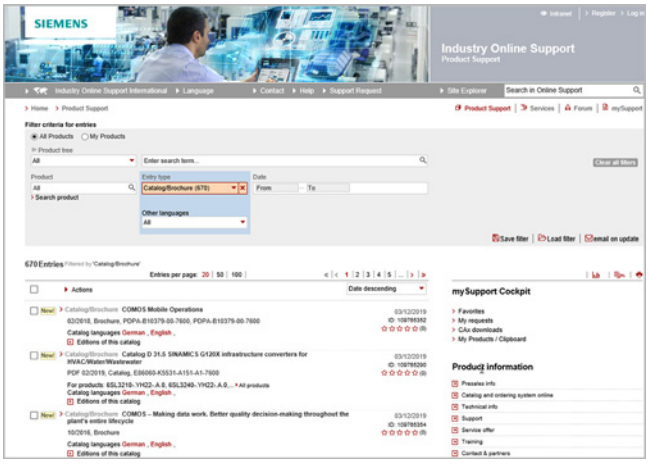


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The filter box makes it possible to perform targeted searches.

www.siemens.com/industry-catalogs

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Please contact your local Siemens branch if you are interested in ordering printed catalogs.
Addresses can be found at
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**Security information**

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connetion is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit **https://www.siemens.com/industrialsecurity.**

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under **https://www.siemens.com/cert.**

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